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# DISEASES OF THE SKIN.

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“UNE méthode, un ordre, une classification systématique est indispensable à la connaissance approfondie de la Pathologie Cutanée.”

GIBERT.

“At prodenter a prudente medico: abstine si methodum nescis.”

BOERHAAVE.



ACARUS FOLLICULORUM.

- A. The animal seen upon its ventral surface; the structure of the head and plastrum, shown.
- B. The animal seen upon its dorsal surface; the head retracted.
- C. A side view of the *Acarus Folliculorum*. The serration of the abdominal segments is purposely exaggerated in all the figures.

The figures are drawn to a scale of a line to  $\frac{1}{2500}$  of an English inch.



*Wm E. Price*  
*Reprints*

A

PRACTICAL AND THEORETICAL TREATISE

ON THE

DIAGNOSIS, PATHOLOGY, & TREATMENT

OF

DISEASES OF THE SKIN,

ARRANGED ACCORDING TO

**A Natural System of Classification,**

AND PRECEDED BY

AN OUTLINE OF THE ANATOMY AND PHYSIOLOGY OF THE SKIN.

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BY

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ANATOMY WITH ILLUSTRATIONS.

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## P R E F A C E.

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HONOUR to the talents and industry of our eminent countryman, Willan—the classification of Diseases of the Skin is the most perfect in Medical Nosology. Willan, it is true, received the idea of his system from his predecessors, and especially from Plenck, but his labours towards the perfection of that idea rendered the classification to which it gave birth his own. With a ray of fortune rare in the days of human discovery, Willan saw his system accepted by his brethren of the Profession with approbation. He was equally fortunate in the privilege of reposing his labours in the friendly hands of Bateman, a physician no less distinguished for moral and religious principle than for learning and research. Since the grave has closed over the labours of Bateman, the culture of diseases of the skin in this country, as a distinct branch of medical science, has slept.

Not so in France; successor after successor, each equally eminent with his precursor, has glided through the moving panorama of life, from the days of Lorry to our own, till Saint Louis, the hospital, has become no less deserving of fame than Saint Louis, the tutelar shade of that magnificent establishment. Saint Louis has enjoyed the pre-eminence of numbering among its medical officers the names of Alibert, Biett, Rayer, Cazenave, Schedel, Devergie, Gibert, Emery, each a diligent cultivator of Dermatology, and each a successful author in that branch of science.

It must be gratifying to the British profession of Medicine to reflect, that the system of Willan, “le systeme des Anglais,” as it is not unfrequently styled by our fellow-labourers on the other side of La Manche, is the sterling currency of the world. With the exception of Alibert, to whose classification I shall presently more directly call attention, all the writers above named have pursued the system of our countryman. I shall be forgiven by those whose pulse beats with national freedom, for expressing my satisfaction in so flattering a mark of distinction bestowed by enlightened men on the mental prowess of our land.

Willan’s classification has been termed *artificial*, because, without regard to causes, or tissues affected, it seizes upon certain appearances as signs of the disease. In this respect, it corresponds

very aptly with the Linnean System of Classification of the Vegetable Kingdom, which has likewise been designated *artificial*. But while the Linnean system is admitted, on all hands, to be that by the aid of which a tyro may most certainly and expeditiously discover the name of a flower, and then, by referring to his books, learn its history and properties, the system has fallen into disrepute among skilful botanists, and has given place to one, founded on a more philosophical basis, which is called the Natural System. For although it be granted that by the aid of the Linnean System we may speedily arrive at the name of a plant by the examination of its flower, yet our artificial system fails us at our need, when the flower has not yet expanded its corolla, or after the stamina have shrivelled and faded away.

The same objection holds good with regard to the Artificial System of Diseases of the Skin. None can be better suited to lead the student to the discovery of the name of the disease, when the disease is at its height, but if he be called to study it at the rise or the decline, the Willanean System, like the Linnean, is but a faithless and deceptive guide.

While turning over in my mind the advantages and the disadvantages of the Willanean Classification, and comparing with it the systems applied to botanical science, the thought occurred to me that the study of the diseases of the skin might be much simplified, and consequently facilitated, by the creation of a system which should embrace all the advantages offered by the Natural System, while it retained the benefits derivable from the Artificial System. It was this thought that gave origin to the system which I have endeavoured to illustrate in the following pages, and for which I have assumed the appellation of—NATURAL SYSTEM OF DISEASES OF THE SKIN.

The Natural System of Classification of Botanical Science, is the system of affinities—affinity of characters, and affinity of properties. The Linnean System is the very reverse of this; based upon an insignificant development, the most heterogeneous affinities are assembled together in the same class. The Willanean System of Classification of Cutaneous disorders admits of a parallel accusation. Under the same order the most dissimilar genera are often associated, while, on the other hand, in subjecting our mental actions to the observance of an insignificant attribute, different phases of the same disease are separated from each other, and are made to occupy distinct orders. Thus it is that we have, on the one hand, to complain of the association of Purpura with Rubeola and Scarlatina; of Erysipelas with Pemphigus; of Ichthyosis with Lepra; of Scabies with Variola and Porrigo; of Eczema with Varicella and Vaccinia; of Acne with Verruca; and of Nævus with Ephelis; while, on the other hand, we have to deplore the unnatural divorce of Variola from mitigated forms of itself,

Varicella, and Vaccinia; of Rubeola and Scarlatina from Variola; of Ichthyosis from Verruca, &c.

Another objection to the Willanean Classification is less important, but still a blemish in his system. I allude to the imitation of the divisions and subdivisions employed in the arrangement of zoological or botanical subjects. Thus, starting with a *Class*, Cutaneous Disorders, Willan established eight *Orders*; each of these *Orders* has its *Genera*, and *Genera* their *Species*. But pathological appearances do not admit of this gradation of subdivision, and no advantage can possibly flow from its adoption. The most that can be admitted is a class of Cutaneous Diseases, these divisible into orders, or groups; but the groups separate at once, to the exclusion of genera, into individual diseases, or species, and varieties of those diseases. The differences between any two varieties are never so strongly marked as to admit of consideration as species, in the proper sense of employing that term.

In the NATURAL SYSTEM of Classification, I have endeavoured to avoid the objections which may be urged against the artificial arrangement. I have prevented the jostling of incompatibles, and, as far as I am able, combined affinities. That my scheme should be perfection would be disheartening to future generations; I have consequently not ventured beyond the pale of knowledge of the present century, and am content to leave some gleanings still upon the field. But, in sober earnest, I should not have ventured upon any, even the slightest innovation, had *innovation* implied the alteration of terms consecrated by habit and use. I should have esteemed a natural and perfect classification as dearly purchased, when gained at the sacrifice of a familiar nomenclature. I have scarcely changed a single term of Willan's glossary, and in the very few instances in which I have departed from this rule, I have been guided by weightier considerations than those of accommodating diseases to a system of my own.

The basis of the NATURAL SYSTEM of classification rests upon Anatomy and Physiology, and herein lies its strength, its simplicity, its easy application, and its truth. The dermis and its dependencies, its glands, and its follicles, are the undoubted seat of all the changes which characterize Cutaneous Pathology. These, then, constitute my four *Primary Divisions*—namely:

- I. DISEASES OF THE DERMIS,
- II. DISEASES OF THE SUDORIPAROUS GLANDS,
- III. DISEASES OF THE SEBACEOUS GLANDS,
- IV. DISEASES OF THE HAIR AND HAIR-FOLLICLES.

I. The *Dermis*, complex in its organization, multiple in its functions, naturally presents us with a much larger field of research than the rest. It may be subject to changes, which constitute my five *Secondary Divisions*—namely:

1. Inflammation of the Dermis,
2. Hypertrophy of the Papillæ of the Dermis,
3. Disorders of the Vascular tissue of the Dermis.
4. Disorders of the Sensibility of the Dermis.
5. Disorders of the Chromatogenous Functions of the Dermis.

1. *Inflammation of the Dermis*, an organ of so much complexity and importance, naturally gives rise to a variety of effects. These effects served by their diversity as the foundation of the Orders of Willan, and in the *Natural Classification* they compose a series of Groups in the Secondary Division under consideration. The Groups of Cutaneous Disorders, illustrative of changes depending on Inflammation of the tissues of the Dermis, are six in number—namely:

- a. Congestive Inflammation of the Dermis,
- b. Effusive Inflammation of the Dermis,
- c. Suppurative Inflammation of the Dermis,
- d. Depositive Inflammation of the Dermis,
- e. Squamous Inflammation of the Dermis,
- f. Inflammation of the Dermis from the presence of Acari.

The first of these groups I have deemed it advisable to divide into two sub-groups—namely, into such as are characterized by *inflammation of the dermis and mucous membranes, with constitutional symptoms of a specific kind*; and such as consist simply of *inflammation of the dermis without constitutional symptoms of a specific kind*, the mucous membranes being less conspicuously disordered. The former sub-group affords grounds for contest, which I am far from wishing to divert; it may be urged, with truth, that the diseases comprised in that sub-group—viz., Rubeola, Scarlatina, Variola, &c.—though heretofore, and ever considered and treated of as diseases of the skin, are in reality, diseases of the system, of which the alteration in the skin is a symptom of comparatively secondary importance. I cannot but assent to the validity of this argument, but I would at the same time claim from the courtesy of the Physician the privilege of delineating a group of diseases so rich and important in their illustration of the pathological changes wrought in and upon the skin by active inflammation. Another question, arising out of the composition of this sub-group, I must not pass over in silence; I allude to the violence which I may appear to have done to the system of Willan, in associating together in the same rank diseases from no less than three Orders of the Willanean classification. I conceive myself warranted in this ravishment, not only by practical considerations, which have a right to enforce a classification of affinities, and to require to be placed in the same category, diseases so closely allied

as the eruptive fevers; but also in virtue of opinions which I have long entertained relatively to these diseases, and which I see no reason to reject, even though they be the subject of the following severe judgment at the pen of a recent excellent writer.\* “Many essential differences, however, were soon observed to distinguish the small-pox, but the points of resemblance between the scarlet fever and the measles were so striking, and so many, that it was not until mankind had suffered in the most dreadful manner, from the great error of confounding them, that their specific characters were remarked, and their separate identity established.” I do yet continue to believe that Rubeola, Scarlatina, and Variola, are diseases originating in the same morbid contagion, the differences between them depending on modification, either of the physical or of the vital conditions of the system by which the contagion is received. That I may be wrong, is very possible; to prove me wrong, would be to perform a service to the cause of a science, in which I, a zealous, though a humble labourer, should rejoice. Variola once admitted into the sub-group, on either of the above grounds, Varicella and Vaccinia, which are undoubted modifications of Variola, follow as a matter of course, and one of the most natural of the groups of the present system becomes established. The remaining sub-group and groups of Inflammation of the Dermis, excepting the fourth and the last, need no farther elucidation than that which they have received in the Prolegomena which precede each chapter of the work. Their correspondence with the Orders of Willan will at once be perceived.

I have styled *depositive* inflammation of the dermis, that alteration which gives rise to the production of small elevations of the skin, termed pimples and tubercles. The order Tubercula of Willan would have formed a sub-group under this title, had I found diseases admitting of such an arrangement. But upon examination, after distributing some of his genera in more appropriate places, and rejecting others, either on the ground of not being diseases primarily originating in the skin, or of not being diseases of this climate, none remained behind.

The last group—namely, “Inflammation of the Dermis from the presence of Acari,” may appear to the eyes of some of my readers in the light of an innovation; but there is no part of the Pathology of Cutaneous Disease, of the truth of which I feel better satisfied, than of this. I have long observed the disease with interest and attention; I have had ample opportunity, from my boyhood upwards, of tracing its progress upon the skin, and the experiments of M. Gras, recorded in the latter chapter of this volume, I have seen exemplified in numberless instances. I might appeal to those very experiments as a sufficient proof of the accuracy of my view

\* Dr. Robert Williams. Elements of Medicine, vol. i., p. 115.

of the nature of scabies, were it not that their author falters as he is about to conclude the race. Suddenly blinded by the mists of prejudice that surrounded him on every side, he stands amazed before the vision of a stimulus of the nerves of the skin, prolonging its effects after the cause is withdrawn. Surely pathology can furnish us with a thousand such instances. But in his despair he sinks still more deeply into the slough that a mere physiological question had thrown in his path; for he becomes lost to the fact, that if a living animalcule act simply as a cause of irritation, and give rise to certain effects, an inorganic substance may also, by exciting irritation, give rise to like effects. I have seen instances in illustration of this, in which the eruption of scabies has been prolonged for months, by a continuance in the use of the means which destroyed the original cause—namely, sulphur ointment. But are we, therefore, to conclude, that this sulphur irritation, so kept up for an indefinite period after the cure of the real disorder, is an “*affection psorique?*” Is it not rather an *affection sulphurique?* Into this error, strange to say, M. Gras falls in the very last page of an otherwise excellent pamphlet. There is, he says,

“An important circumstance, to which I ought to draw attention, I mean the persistence of vesicles after the close of an active treatment, when dead acari only are to be found, and when by dint of friction and baths all the ova must have been destroyed, it is rare, indeed, that we discover living sarcoptes after three or four days of treatment, nevertheless, the *disease* often continues for ten or fifteen days. This fact is, in truth, so constant, that on perceiving an abundant eruption of vesicles (*psorique*) covering the hands, when no cuniculus is apparent, we may instantly conclude that the patient has been submitted to treatment.” In one case, I saw a young man in whom itch had reappeared eight days after his dismissal from the hospital, without his having been exposed to the contagion afresh; his hands were covered with well-formed acuminated vesicles, but I was unable to discover the slightest trace of a cuniculus. In considering this fact by the side of analogous cases, in which scabies has proved rebellious to every kind of treatment, and where the vesicles may disappear during an acute disease, to reappear subsequently, we should be tempted to believe that the action of the acarus in the production of scabies was not merely local and mechanical, but that it was capable of acting on the economy in a manner that we might call *vital* and *physiological*. The acarus would, consequently, be nothing more than the exciting cause of the disease, without *constituting it entirely*. In this manner we might, up to a certain point, explain why certain kinds of transient itch may be transmitted from animals to man, although the sarcoptes of the animal may be wholly unable to live and propagate on the skin of man. In adopting this view, the



treatment offers two indications—1. To destroy the *acarus*; 2. To treat the ‘*affection psorique*,’ which, nevertheless, would get well of itself when once the *sarcoptes* had been entirely removed.”

It is to be regretted that M. Gras should so signally have failed in his reasoning, when the prize for excellent observations was already in his hands. I am thoroughly convinced, and so long as I possess that conviction, shall ever continue to maintain, that the *Acarus* is the sole and only cause of scabies, and that every eruption, however acuminated and well-defined its vesicles, if it be deficient of the living cause, is not scabies. Many dermatologists, it is true, acknowledge the existence of the *acarus scabiei* in itch, but they regard it as a complication, and not as the real cause of the disease. They still treat of scabies as a vesicular eruption, and accuse the blood and system of taking a share in the affection. I may render this affirmation more apparent, by quoting the opinions of some of the most eminent of modern dermatologists.

Rayer, treating of the causes of scabies, remarks:—“The most momentary contact of the *fluid* secreted by its vesicles, is enough to communicate the infection,” (p. 339.) Now this is not the fact, unless the fluid of the vesicles contains the animalcule or its ova, which is not usually the case, and even in that event, the contact must be such as to enable the former to take a firm hold upon, and bury himself in the epidermis, or to afford time to the latter to hatch and give exit to the LIVING CAUSE of scabies. The same author observes—“It is, farther, rare to discover these insects on the abdomen and on the groins, where the eruption is nevertheless very common and very apparent; moreover, scabies is known to continue when no more *acari* are to be discovered.” It would occupy too much space to explain, singulatim, the objections made by the opponents of the views on this subject which I advocate in this volume; it is sufficient to mention, as a commentary on the last passage, that Rayer speaks of the *acarus* upon the report of others; he has never extracted the animalcule himself; moreover, in reference to the former part of the preceding sentence, it must be recollected, that a single *acarus* is always the cause of a number of vesicles, that number increasing with the susceptibility of the portion of skin invaded; and in reply to the latter part,—the assertion is unsupported by fact.

Cazenave and Schedel,\* referring to the proximate cause of scabies, observe—“The proximate cause is wholly unknown—an acid principle, a peculiar ferment, and lastly, the presence of an insect, have each in its turn been advanced. This latter hypothesis is admitted by a considerable number of physicians; nevertheless, if we cannot affirm that the creature has no existence, we are at least very far from believing that it does.”

Gibert speaks cautiously relatively to the cause of scabies,

\* *Abrégé Pratique des Maladies de la Peau*, p. 16.

although he confesses to have seen the *acarus* several times. It is impossible, however, from his writings, not to perceive that he exercises considerable mental reservation on the side of a different origin and cause than the animalcule in question. Thus, speaking of the frequency of the sanguine and lymphatic temperaments in France, he observes—"It would be unfair to attribute the more frequent occurrence of scabies, in persons of this temperament, solely to a natural predisposition to the attack of contagious diseases, and to the more active absorption really existing in these individuals."\* And again he remarks—"The seasons during which the skin is most permeable are those which favour the contagion." In a lecture reported in the *Gazette des Hôpitaux* for July 31, 1841, the same author inquires—"Is the *acarus scabiei* the cause or the product of the eruption?"

Devergie, in the *Gazette des Hôpitaux* for July, 1842, observes—"Since the publication of the clear and precise description of the *acarus scabiei* by Raspail, no one can doubt the existence of the animalcule. The questions to be decided are—Is the disease engendered by the transportation of the insect from one person to another? Is it the *fluid of the vesicles* which excites the eruption? Is it by the ova only that the disease is propagated? Or, does the vesicle give origin to the animalcule?"

The history of the itch-animalcule, which forms a curious narrative, I have given in the last chapter of the work. I have many times extracted the little creature from its epidermic haunts in cases of scabies, and I have preserved numerous specimens of it, which are open to the examination of those members of the profession who may feel an interest in viewing an *atom* that has caused so much inkshed throughout the civilized world, and, like another Helen, has aroused battles and feats of warlike prowess, that have been deemed worthy of being handed down to future ages, in a volume dedicated especially to their narration, the "*Acaromachia*."†

2. *Hypertrophy of the Papillæ of the Dermis* forms a well-defined group, being necessarily attended with increased formation of epidermis. It embraces in its consideration five characteristic examples—namely, Ichthyosis, Tylosis, Clavus, Verrucæ, and Cornua.

3. *Disorders of the Vascular tissue of the Dermis*. The alterations of the vascular tissue are limited to two—hypertrophy of that structure, as in the instance of Vascular Nævus; and altered relation between the containing and the contained parts, inducing Purpura.

4. *Disordered Sensibility of the Dermis*, referrible to the nervous

\* *Traité Pratique des Maladies de la Peau*. Second edition, p. 125.

† A work recently published in France.

system, constitutes the distressing affection denominated Hyperæsthesia, or Pruritus.

5. *Disorders of the Chromutogenous Functions of the Dermis* compose a group corresponding in general expression with the order *Maculæ* of Willan. It admits of division into three sub-groups—namely, into those diseases which are characterized by Augmentation of pigment, into those which present a Diminution of pigment, and into those which coincide in a morbid Alteration of the pigment, each of these sub-groups having its separate examples.

II. The SUDORIPAROUS GLANDS, with their beautifully spiral excretory ducts, are a system of organs of modern discovery, for a knowledge of which science is indebted to the researches of Breschet and Roussel de Vauzeme into the minute anatomy of the skin. The first figures of these structures, drawn from nature, which appeared in this country, were published some years since in the large work of anatomical plates, edited conjointly by Dr. Jones Quain and by myself. The pathology of the sudoriparous glands has not as yet been separately investigated, but sufficient observations have been made relatively to the perspiratory secretion, to admit of an arrangement of their diseases into such as give rise to

Augmentation of secretion.  
Diminution of secretion.  
Alteration of secretion.

III. The SEBACEOUS GLANDS, in reference to their diseases, constitute a somewhat numerous, but highly interesting division, under five distinct groups—namely,

Augmentation of secretion.  
Diminution of secretion.  
Alteration of secretion.  
Retention of secretion.  
Inflammation of the glands and adjacent tissues.

In this division I have established the true position of a remarkable form of incrustation of concreted sebaceous substance upon the surface of the epidermis, hitherto confounded with ichthyosis, and bearing a close resemblance to that disease. I have termed it *Sebaceous ichthyosis*, and having had the good fortune to meet with an instance of the disease in the dissecting room, have been enabled to explain the precise manner in which the crusts are produced. Dr. Jacobovics has recently published a treatise on *Molluscum*, in which he erroneously describes sebaceous ichthyosis as a new variety of molluscum, under the name of “*tubercules bigarrés.*”

This division has been enriched by a very curious and remarkable discovery made by Dr. Gustav Simon, of Berlin. Dr. Simon has ascertained the existence of certain articulated animalcules of goodly size, in the sebaceous substance which collects and concretes in the hair-follicles, and which, in an advanced degree, constitutes those little accumulations termed comedones, or grubs; he also finds them in those still farther advanced stages of the same alteration, termed acne punctata. Dr. Simon has given an excellent account and some good figures of this little creature. Directed to the haunts of this singular animal by the anatomist above named, I have examined several hundred specimens, and have been led to results different from those recorded by Dr. Simon relative to the alterations which the creature undergoes during development. With the valuable aid of Mr. Bagg, so justly eminent for anatomical delineation and engraving, I have been enabled to present to my readers a very faithful and accurate portrait of this little animal, in which not only the form but much of the texture of the creature is exhibited. Dr. Simon, with the assistance of the entomologists of Berlin, has named the animal, *acarus folliculorum*, a name which I think in many respects objectionable.

To this division, also, I have transferred the molluscum contagiosum of Bateman and his disciples. This disease, which is a small tumour of the skin produced by the enlargement, from impaction with altered sebaceous substance, of a sebaceous gland, has been recently illustrated by two excellent papers which appeared in the 56th volume of the Edinburgh Medical and Surgical Journal, from the pens of Dr. Henderson and Dr. Paterson. Both of these writers endeavour to perpetuate the opinion, so long entertained, of the contagious nature of this disease. Dr. Henderson and Dr. Paterson inoculated the fluid expressed from the tumours, unsuccessfully; had they made the experiment by friction of the morbid fluid into a part of the body richly supplied with sebaceous glands, they would have been equally unsuccessful, for *molluscum is not contagious*. Dr. Paterson regards the contents of these tumours as the real disease, and he ingeniously attributes to the development of cells from nuclear matrices, as in the instance of cancer, the formation of the disorder. By means of the same hypothesis, he explains the transmission of the disease by contagion; for one of these cytoblasts reaching a favourable nidus for its development—e. g., the excretory duct of a sebaceous gland—speedily gives birth, by excentric genesis, to myriads of young cells, and a collection is produced, which constitutes the molluscous tumour. But before this hypothesis can be admitted, that must be proved which is equally hypothetical—namely, the contagion of molluscum.

By a stroke of good fortune, I have been in possession of an excellent opportunity of investigating this somewhat rare disease during the present year. In my case, a whole family was affected

with the molluscous tumours. They are now well, with the exception of the mother who has a single well characterized tumour, of medium size, near the outer canthus of the eyelid. I have requested her to let it remain so long as it gives rise to no serious inconvenience, with the double object of giving it every opportunity of diffusing its cytoblasts, if it have the power; and of supplying me with its impacted cells for microscopic examination. I trust that it is needless for me to affirm that I would not expose a family to the risk of contagion, if I believed in the possibility of such an event; but molluscum, I repeat, is not contagious.

Sycosis, one of the diseases included in the last group of this division, has been recently made the subject of research by M. Gruby, of Vienna. This gentleman has announced the discovery of a cryptogamic plant developed in the root of the hair and in the follicle around the hair, in a form of sycosis, to which he assigns the designation, *Mentagra contagiosum*. I have not yet had the opportunity of verifying M. Gruby's discovery, and can therefore express no opinion on its truth. M. Gruby moreover suggests as an appropriate name for the contagious variety of sycosis, the term *Mentagrophyte*.

IV. DISEASES OF THE HAIRS AND HAIR-FOLLICLES offer to our examination a variety of abnormal and morbid changes which are liable to occur in relation to these important organs. These changes admit of consideration under the six following heads—namely,

- Augmented formation.
- Diminished formation.
- Alteration of colour.
- Diseases of the hair-pulps.
- Diseases of the hair-follicles.
- Abnormal direction of the hair.

Among the diseases of the hair-follicles I have placed Favus, an affection which has been illustrated of late by the interesting discovery by Remak, Schönlein, and Gruby, of an organic formation within its crusts, very closely resembling a vegetable growth. The last of these authors, however, entertains an opinion relative to the nature of favus different from that which I feel bound to advocate. He considers the crust as an independent vegetable formation enrooted in the follicle of the hair, and drawing from the contiguous tissues its means of nourishment. I am far from agreeing with him in this respect, but continue to believe as I have hitherto believed previously to the discovery in question, that the morbid condition of the follicle gives rise to the production of the abnormal organic substance constituting the crust. Its vegetable nature is hypothetical. In harmony with the view entertained by M. Gruby, this gentleman suggests that favus should form a new

order, with two other diseases of vegetable origin—aphtha and sycosis contagiosum—under the designation, *Nosophyta*; that favus should be styled *Porrigophyte*; and aphtha, *Aphthophyte*. It will be time to make these alterations when the observations on which they are proposed to be based shall be proved to be incontestible.

Dr. John Hughes Bennett has made the “parasitic fungi found growing in living animals” the subject of a paper read before the Royal Society of Edinburgh in the month of January of the present year.\* This gentleman gives an excellent account of the mucedo of favus, and has illustrated his observations by some beautiful delineations. He remarks upon the association of parasitic vegetation with the matter of tubercle, and observes that the peculiar constitution or cachexia favourable and predisposing to their growth, is the tubercular or scrofulous. “In man all the vegetations yet discovered have been found connected with the matter effused into the textures in scrofulous constitutions. The fungi found by myself, for instance, growing in the tuberculous cavities of the lungs, and those discovered by Schönlein, and described by Gruby, constituting scrofulous eruptions on the skin, grew on a finely granular amorphous mass, which presented no evidence of organization. Chemical researches have shown that this form of tubercular matter is principally composed of albumen, which explains the large proportion of this animal principle present in the crust of the *Porrigo* or *Tinea favosa*, according to the analysis given by Alibert.” The succeeding observations of Dr. Bennett harmonize exactly with the conditions under which we commonly find favus first showing itself in man—namely, in cachectic subjects, in poor-houses, public schools, &c.; although, on the other hand, the disease appears to be capable of extending itself by contagion, independently of the existence of cachexia. “The fungi found by MM. Rousseau and Serrurier in the parroquet, grew on a species of false membrane. What the nature of this membrane was, is not stated, but it is distinctly mentioned that the animal died of laryngeal and pulmonary phthisis. In pigeons, also, the same authors describe it as commonly induced by exposure to cold and moisture, circumstances well known to be the most common cause of scrofula, and of tubercular depositions. According to the observations of Valentin, the parasitic confervæ found growing on fish are connected with a diseased state of the animal, and are induced by keeping them in narrow vessels and foul water. The gold fish was evidently unhealthy which furnished the vegetations which I have myself described, and I have shown that these were connected with a granular, inorganic, albuminous matter, identical with that found in the lungs of phthisical individuals, and in the crusts of *Porrigo favosa*.” Dr. Bennett, in the course of his inves-

\* I am indebted to Sir James Clark for the opportunity of noticing the researches of Dr. Bennett. My preface was already in the hands of the printer before I was made aware of Dr. Bennett's labours.

tigations, made the singular discovery of an eruption of favus upon the face of the common mouse, and he connects this observation with the odour of mice, so remarkable in this disease in man. In the mouse "the crusts were of a more irregular form, prominent in the centre, not forming distinct capsules, or perforated by a hair. They formed a prominent whitish friable mass on the left side of the face of the animal, about the size of a small bean. Examined microscopically, they presented the cylindrical tubes and sporules *en masse*, in every respect identical to those which grow on the scalp of man."

Such is a brief sketch of the scheme, which I propose to designate a NATURAL SYSTEM OF CLASSIFICATION OF DISEASES OF THE SKIN, and I trust that its clearness and simplicity will be the means of rendering a branch of medical science, which has hitherto with much reason been regarded as obscure and confused, intelligible and precise. For the convenience of my readers I have arranged the classification in a tabular form.

I. DISEASES OF THE DERMIS.

			{ Rubeola.
			{ Scarlatina.
		{ Specific . . .	{ Variola.
			{ Varicella.
			{ Vaccinia.
	{ Congestive . . .	{ Non-specific	{ Erysipelas.
			{ Urticaria.
			{ Roseola.
			{ Erythema.
		{ Asthenic . . .	{ Pemphigus.
			{ Rupia.
	{ Effusive . . .	{ Sthenic . . .	{ Herpes.
			{ Eczema.
			{ Sudamina.
Inflammation . . . . .	{		{ Impetigo.
			{ Ecthyma.
	{ Suppurative . . . . .		{ Strophulus.
			{ Lichen.
			{ Prurigo.
	{ Depositive . . . . .		{ Lepra.
			{ Psoriasis.
			{ Pityriasis.
	{ Squamous . . . . .		{ Scabies.
	{ From Parasitic Animalcules . . .		{ Ichthyosis.
			{ Tylosis.
Hypertrophy of the Papillæ . . . . .	{		{ Clavus.
			{ Verrucæ.
			{ Cornua.
Disorders of the Vascular Tissue . . . . .	{		{ Vascular Nævi.
			{ Purpura.

Disordered Sensibility . . . . .	{	Hyperesthesia.
		Pruritus.
Disordered Chromatogenous Function . . . . .	{	Augmentation of pigment . . . . .
		{
		Diminution of pigment . . . . .
		{
		Nigrities.
		Pigmentary Nævi
		Albinismus.
		Vitiligo.
		Ephelis.
		Lentigo.
		Chloasma.
		Melasma.
		Oxyde of Silver
		Stain.

II. DISEASES OF THE SUDORIPAROUS GLANDS.

Augmentation of Secretion . . . . .	Sudatoria.
Diminution of Secretion.	
Alteration of Secretion . . . . .	Abnormal Odour, Colour, &c.

III. DISEASES OF THE SEBACEOUS GLANDS.

Augmentation of Secretion . . . . .	Stearrhœa.	
Diminution of Secretion.		
Alteration of Secretion . . . . .	Ichthyosis Sebacea.	
Retention of Secretion . . . . .	{	Duct Open . . . . .
		{
		Comedones.
		Sebaceous Accumulations.
		Small Sebaceous Tumours,
		( <i>Molluscum Contagiosum.</i> )
		Sebaceous Miliary Tubercles.
		Calcareous Miliary Tubercles.
		Serous Cysts.
		Encysted Tumours.
Inflammation of Glands and adjacent Textures . . . . .	{	Acne.
		Sycosis.

IV. DISEASES OF THE HAIRS AND HAIR-FOLLICLES.

Augmented Formation . . . . .	Pilous Nævi.	
Diminished Formation . . . . .	{	
	{	
		Alopecia.
		Calvities.
Alteration of Colour . . . . .	Canities.	
Disease of the Hair-Pulps . . . . .	Plica Polonica.	
Disease of the Follicles . . . . .	{	
	{	
		Inflammatio Folliculorum.
		Favus.
Abnormal Direction . . . . .	{	
	{	
		Trichiasis.
		Felting.



Classification would appear to have been almost coeval with the earliest observation of Diseases of the Skin. Hippocrates, the Father of Physic, established a truly philosophical system—namely, an ETIOLOGICAL CLASSIFICATION of these diseases, dividing them into local and constitutional. The former he regarded as of independent existence, and the latter as the consequence of a morbid state of constitution, in which an attempt is made, on the part of Nature, to throw out the disease. This doctrine was subsequently adopted by Lorry, and more thoroughly explained; and its truth has been admitted by all our most recent and best writers. The Etiological System has been recently revived in France by M. Baumés, in a work entitled “Nouvelle Dermatologie,” the second volume of which appeared during the present year.

It failed not to engage the attention of the Ancients, that cutaneous diseases manifest a remarkable disposition to affect certain localities of the skin; that some are confined to the head alone, while others are distributed over the rest of the body. In the fertile mind of Galen, this observation became the groundwork of a TOPOGRAPHICAL SYSTEM of classification, according to which, the diseases of the skin are divided into two classes—those that have their seat upon the head, and those that affect the surface of the body generally. The topographical classification was advocated very strongly by Jerome Mercurialis, a celebrated physician of Italy, in the sixteenth century. Mercurialis, moreover, subdivided the diseases affecting the body into two secondary groups—viz., such as produce alteration of colour, and such as produce alteration of smoothness. This classification pays no regard either to the structures involved by disease, or to pathological principles; hence it is open to many and serious objections, since, according to it, the same morbid condition, differing simply in site, would be regarded as two different diseases. The Topographical System, somewhat modified, was followed by our countryman Turner, in 1714, and was not thought unworthy of revival by Alibert, in his first classification.

In the early part of the seventeenth century, it occurred to Riolanus to arrange the diseases of the skin according to their *appearances*, and without reference to their situation. He accordingly divided them into three groups—*Pustules*, *Deformities*, and *Tubercles*. This rude scheme, at a later period, became developed into the admirable ARTIFICIAL CLASSIFICATION of the present day. Plenck, who published his views in 1776, divides cutaneous diseases into fourteen classes; but for the purpose of establishing so many subdivisions, he falls into the serious error of considering the different stages of the same affection as so many distinct diseases. The system of Plenck, considerably modified and improved, became the groundwork of the classification of Willan.

The fourteen classes established by Plenck are the following:—

Maculæ,	Crustæ,	Vulnera,
Pustulæ,	Squamæ,	Insecta,
Vesiculæ,	Callositates,	Morbi unguium,
Bullæ,	Excrescentiæ,	Morbi pilorum.
Papulæ,	Ulcera,	

The classification of Willan, published in 1798, consisted of eight orders—viz.,

Papulæ,	Vesiculæ,
Squamæ,	Pustulæ,
Exanthemata,	Tubercula,
Bullæ,	Maculæ.

Willis, in the latter part of the seventeenth century, arranged Cutaneous Diseases, in accordance with their LOCAL CONDITION, into two groups—namely, into those attended with swelling, and into those in which no tumefaction was present.

The only modern classification which has been attempted since the time of Willan, is that of the distinguished dermatologist, Alibert, who claimed for his perfected classification the title of *Natural System*. Alibert assembled the whole of the diseases of the skin into one large group, under the name of *Dermatosis*, and this group he considered to be composed of twelve smaller groups—namely,—

Dermatoses	Eczemateuses,
„	Exanthemateuses,
„	Teigneuses,
„	Dartreuses,
„	Cancereuses,
„	Lepreuses,
„	Veroleuses,
„	Strumeuses,
„	Scabieuses,
„	Hemateuses,
„	Dyschromateuses,
„	Heteromorphes.

These were the twelve branches of the celebrated “Arbre des Dermatoses” of Alibert—a system grand in conception, but inapplicable to the purposes for which it was intended—a system which lives at the present only in the memory of the past, which has ceased to exist even beneath the foliage of the “*tilleuls*” that smiled upon its birth.

The Genera included under each of these groups are—

*Dermatoses Eczemateuses*.—Erythema; erysipelas; pemphix; zoster; phlyzacia; cnidosis;<sup>1</sup> epinyctide;<sup>2</sup> olophlyctide;<sup>3</sup> ophlyctide;<sup>4</sup> pyrophlyctide;<sup>5</sup> anthrax; furunculus.

*Dermateuses Exanthemateuses*.—Variola; vaccinia; clavelée;<sup>6</sup> varicella; nirle;<sup>7</sup> roseola; rubeola; scarlatina; miliria.

*Dermatoses Teigneuses*.—Achor;<sup>8</sup> porrigo; favus; trichoma.<sup>9</sup>

*Dermateuses Dartreuses*.—Herpes;<sup>10</sup> varus;<sup>11</sup> meltagra;<sup>12</sup> esthioméne.<sup>13</sup>

*Dermateuses Cancereuses*.—Carcinoma; keloide.

*Dermatoses Lepreuses*.—Leuce;<sup>14</sup> spiloplaxie;<sup>15</sup> elephantiasis; radesige.<sup>16</sup>

*Dermatoses Veroleuses*.—Syphilis; mycosis.<sup>17</sup>

*Dermatoses Strumeuses*.—Scrofula; farcinoma.

*Dermatoses Scabieuses*.—Scabies; prurigo.

*Dermateuses Hemateuses*.—Peliosis;<sup>18</sup> petechiæ.

*Dermatoses Dyschromateuses*.—Pannus;<sup>19</sup> achrome.<sup>20</sup>

*Dermatoses Heteromorphes*.—Ichthyosis; tylosis; verruca; onygos;<sup>21</sup> dermatolysie;<sup>22</sup> nævus.

I have said little of the works of the dermatologists of Britain in the following pages, but it is not that I am wanting in a proper estimation of their labours. The works of Willan and Bateman have become classic volumes. Mr. Plumbe's work contains many original views. Dr. Anthony Todd Thomson has enriched this department of science by bestowing upon it the fruits of many years of untiring industry and perseverance. Mr. Gaskoin, though not an author, has contributed much to the practice of cutaneous diseases. Dr. Willis and Mr. Dickinson have conferred a boon upon medicine by their translations of Rayer. Sir Arthur Clarke, Dr. Wallace, and Dr. Green, have increased our knowledge with regard to the effects of Baths and Fumigations. Mr. Dendy is the author of a very useful and well arranged treatise on the cutaneous diseases of children; and Mr. Hunt has published a concise synopsis on the diseases of the skin. The subject affords little scope for monographs on separate diseases; nevertheless, the treatise

<sup>1</sup> Urticaria.

<sup>2</sup> A nocturnal eruption, disappearing by day, described only by Alibert.

<sup>3</sup> Herpes.

<sup>4</sup> Aphthæ.

<sup>5</sup> Malignant pustule.

<sup>6</sup> A varioloid of sheep transmissible to man.

<sup>7</sup> A varioloid.

<sup>8</sup> Crusta lactea.

<sup>9</sup> Plica polonica.

<sup>10</sup> The squamous diseases, Lepra, Psoriasis, and Pityriasis.

<sup>11</sup> Acne and Sycosis.

<sup>12</sup> Impetigo.

<sup>13</sup> Lupus.

<sup>14</sup> The Jewish leprosy.

<sup>15</sup> Malum mortuum.

<sup>16</sup> The name given to an elephantiasis of northern countries, in Norway.

<sup>17</sup> This genus includes Frambæsia and Molluscum.

<sup>18</sup> Purpura.

<sup>19</sup> This genus includes Lentigo, Ephelis, Pityriasis versicolor and Pityriasis nigra.

<sup>20</sup> Vitiligo, Albinismus.

<sup>21</sup> Onychia.

<sup>22</sup> Abnormal extensibility of the skin.

by Mr. Plumbe on ringworm, scalled head, and other forms of porrigo, has been succeeded by a very excellent treatise on the same subjects, by Dr. Walter Dick; and still more recently, an essay on a similar subject, which I have not had an opportunity of perusing, has appeared, from the pen of Mr. Erichsen. There are probably other writers on this interesting branch of medical science, whose works, ignorance of their existence alone deprives me of the pleasure of recording.

In conclusion I may remark, that my aim in the following work has been to simplify the diagnosis and treatment of disease in a branch of medicine to which I have given some years of thought, and to the mature study of which I henceforward devote my life. How far I may have succeeded in effecting the object I had in view, I leave those to decide, by whom I would be governed as well as judged—MY PROFESSION.

*55, Upper Charlotte street, Fitzroy-square,  
October 1, 1842.*

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# DISEASES OF THE SKIN.

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## CHAPTER I.

### ANATOMY AND PHYSIOLOGY OF THE SKIN.

1. THE skin is the exterior investment of the body, which it serves to cover and protect. It is continuous at the apertures of the internal cavities with the lining membrane of those cavities,—the internal skin, or mucous membrane; and is composed essentially of two layers, the dermis and epidermis.

2. The dermis, or cutis, is chiefly composed of areolo-fibrous tissue, besides which it has entering into its structure, elastic and contractile fibrous tissue, together with blood-vessels, lymphatic vessels, and nerves. The areolo-fibrous tissue exists, in its most characteristic form, in the deeper strata of the dermis, which are consequently dense, white, and coarse, while the superficial stratum is fine in texture, reddish in colour, soft, raised into minute papillæ, and endowed with an abundant supply of vessels and nerves. This peculiarity of structure of the dermis, has given rise to its consideration as consisting of two layers—the superficial or papillary layer, and the deep stratum or corium.

3. The epidermis, or cuticle, is a product of the dermis, which it serves to envelope and defend. That surface of the epidermis which is exposed to the influence of the atmosphere and exterior sources of injury, is hard and horny in its texture, while that which lies in contact with the sensitive papillary layer of the dermis, is soft and cellular. Hence this membrane, like the dermis, offers two strata for our observation, the outermost stratum, commonly spoken of as the epidermis, and the innermost stratum, or rete mucosum. The latter was considered and described by Malpighi as a distinct membrane, and is frequently referred to under the name of rete Malpighianum.

4. Besides the dermis and epidermis, the skin includes certain important secreting organs, and certain appendages of the epidermis, which call for separate notice. The secreting organs are the sudoriparous and sebaceous glands, and the appendages of the epidermis, the hairs and the nails.

5. The dermis presents considerable variety in degree of thickness in different parts of the body. Thus upon the more exposed regions, as the back, the outer sides of the limbs, and the palms and soles, it is remark-

able for its thickness; while on protected parts, as the inner sides of the limbs, and the ventral surface of the trunk, it is comparatively thin. On the eyelids, the penis, and the scrotum, again, it is peculiarly delicate. The papillary layer also presents differences in extent of development; thus on the palms of the hands, the pulps of the fingers, and the soles of the feet, this layer is thick, and the papillæ numerous and of great length, while in most other situations it is thin, and the papillæ are little apparent. Some contrariety is observed, besides, in the relative proportion of the layers of the dermis, for on the back, where the corium is exceedingly thick, the papillary layer is but slightly developed, while on the pulps of the fingers, where the latter is strikingly manifest, the corium is thin.

6. The areolo-fibrous tissue of the dermis is constructed of fibres of two kinds—namely, of minute cylindrical fibres, which are identical in their nature with the delicate wavy fibres of common areolar, or cellular substance, and of fibres of elastic tissue, presenting their characteristically curved ends, and branching distribution. In the superficial strata of the corium, the white fibres are collected into small fasciculi, and form an intricate interlacement, which supports the papillæ, and constructs a nidus for the capillary rete of vessels and nerves. In the middle strata, the fasciculi are larger and flattened, and the areolar net-work coarse; while in the deep layer, the fasciculi are still broader, they leave considerable spaces between them, which are occupied by adipose tissue, and they are continuous with the subcutaneous areolar membrane. The yellow elastic fibres are solitary in their arrangement, they are abundant in the superficial layers of the corium, but rare and scarcely met with in the deeper strata. The areolæ left by the interlacement of the fibres of the areolo-fibrous tissue, are the channels by which the branches of vessels and nerves find a safe passage to the papillary layer, in which, and in the superficial strata of the corium, they are principally distributed.

7. The contractile fibrous tissue of the dermis has been demonstrated hitherto only in certain parts of the human skin, as in the nipples and scrotum, but it undoubtedly exists in the corium of every part of the body. It consists of fibres of a reddish hue, somewhat larger than those of areolar tissue, and semi-transparent. These fibres are collected into fasciculi, sometimes lying parallel with each other, and forming membranous layers, at other times interlacing in every direction, and composing a firm web. They are met with in every part of the corium, but are most abundant in the course net-work of its under surface. This tissue is easily perceived in the corium of some animals, where it forms a web around the sebaceous glands and hair follicles. It probably has the same arrangement in the skin of man; in the former situation acting as a compressor of the sebaceous gland, and an important auxiliary to the current of its secretion; in the latter producing an erection of the hairs analogous to the bristling which takes place in animals. That appearance of the skin produced by cold or fear, (*spasmus periphericus*,) that we term *cutis anserina*, or goose-skin, is due to the presence of this contractile fibrous tissue.

Mr. Bowman\* has indicated the presence of organic muscular fibre in

\* Cyclopædia of Anatomy and Physiology. Article, Mucous Membrane, Note, page 494.

the tissue of the dartos, "at once known by its being loaded with corpuscles or persistent cell-nuclei." The same fibres probably exist in the contractile tissue of the nipple.

8. The papillary layer of the dermis is raised in the form of conical prominences or papillæ. Upon the general surface of the body the papillæ are short, and exceedingly minute, but in other situations, as on the palmar surface of the hands and fingers, and on the plantar surface of the feet and toes, they are long, and of large size. They are also different in their arrangement in the situations above cited; thus, on the general surface, they are distributed at equal distances, and without order, whereas, on the palms and soles, and on the corresponding surfaces of the fingers and toes, they are collected into little square clumps, containing from ten to twenty papillæ, and these little clumps are disposed in parallel rows. It is this arrangement, in rows, that gives rise to the characteristic parallel ridges and furrows which are met with on the hands and on the feet. The papillæ in these little square clumps are for the most part uniform in size and length, but every here and there one papilla may be observed which is longer than the rest. The largest papillæ of the dermis are those which produce the nail; in the dermic follicle of the nail, they are long and filiform, while beneath the concave surface of the nail they form longitudinal and parallel plications, which extend for nearly the entire length of that organ. In structure each papilla is composed of a more or less convoluted capillary, and a more or less convoluted nervous loop.

9. The arteries of the dermis which enter its structure through the areolæ of the under surface of the corium, speedily divide into innumerable intermediate vessels, which form a rich capillary plexus in the texture of the superficial strata of the dermis, and in its papillary layer. In the former situation the capillary rete is horizontal—that is, it corresponds with the plane of the surface of the skin, while in the papillæ it is necessarily the reverse of this—namely, perpendicular to the plane of the surface. To see the capillary plexus of the papillæ, it consequently becomes necessary to examine the injected skin by means of a vertical section, but if the horizontal rete is to be observed, no section is needed. In the papillæ of some parts of the dermis, as in the longitudinal plications beneath the nail, the capillary vessels form simple loops, but in other papillæ they are convoluted to a greater or less extent, in proportion to the size and importance of the papillæ. The capillary rete of the horizontal strata presents, as may be inferred, a number of circular areæ, some of which appear to correspond with the bases of the papillæ, while the greater number occupy the walls of the passages through which the sudoriferous and sebaceous ducts make their way to the surface. After a certain extent of course, the intermediate vessels unite to form the veins by which the circulated blood returns to the system.

10. The lymphatic vessels probably form in the superficial strata of the dermis, a plexus, the meshes of which are interwoven with those of the capillary and nervous plexus. No lymphatics have as yet been discovered in the papillæ, nor, indeed, can I imagine that they would perform any useful office in that situation. I once succeeded in injecting a minute lymphatic plexus in the dermis of a fœtal lamb.

11. The nerves of the dermis, after entering the areolæ of the deeper part of the corium, divide into minute fasciculi, and these quickly sepa-

rate into primitive fibres. Corresponding with the horizontal vascular rete, the nervous fasciculi constitute a nervous rete, from which loops of primitive fibres enter the papillæ. In the less sensitive parts of the skin, the loops are simple, and more or less acute in their bend, in conformity with the figure of the papilla. In the sensitive parts, however, and especially in the tactile papillæ of the pulps of the fingers, the loop is convoluted to a greater or less extent, and acts as a multiplier of sensation.

12. The epidermis is a membrane of defence, spread out upon the surface of the dermis. As we have previously observed, this membrane presents a difference of density according as it is viewed from its outer or inner surface; the outer or free surface being dense and horny, the inner or attached surface being soft and cellular. Moreover, the epidermis is laminated in its structure, and the laminae present a progressively increasing tenuity and density, as they advance from the inner to the outer surface. This difference in density and thickness is dependent on the mode of growth of the epidermis, for as the external surface is constantly subjected to destruction by attrition and chemical action, so the membrane is continually reproduced on its internal surface, new layers being successively formed upon the dermis to take the place of the old.

13. The mode of reproduction and growth of the epidermis may be thus briefly explained:—a stratum of plastic lymph (liquor sanguinis) is exuded by the capillary vessels of the dermis upon the surface of the latter. This fluid lying in contact with every part of the surface of the capillary layer, and acting as a blastema, is, by virtue of the vital force inherent in itself, and communicated to it by contact with a living tissue, converted into granules, which are termed cell-germs, or cyto-blasts. By a process of endosmosis, the cyto-blasts imbibe a certain quantity of albuminous fluid, partly derived from the effused lymph, and partly from the living tissues; and as an effect of this endosmosis, the outermost layer of the cyto-blast is raised from its surface, in consequence of distention with the imbibed fluid. The cyto-blast has now become a cell, and the solid portion of the cyto-blast which always remains adherent to the internal surface of the cell-membrane, is the nucleus of the cell. Moreover, within the nucleus, one or several nuclei are formed, which are termed the nucleoli. The process of imbibition which has thus been commenced, proceeds by degrees, until the cell has become nearly or entirely spherical. It follows, that, at this period, every part of the surface of the papillary layer of the dermis is covered by a thin and membranous stratum, formed of spherical cells, lying closely pressed together, and corresponding with every irregularity which the papillæ present. But as this production of cells is a function constantly in operation, a new layer is formed as soon as the first is completed, and the latter is separated by subsequent formations farther and farther from the surface of the papillary layer. With loss of contact with the dermis, the vital force is progressively diminished, and the cell becomes subjected to the influence of purely physical laws, and in consequence of the action of those laws, evaporation of its enclosed fluid slowly ensues. As an effect of this evaporation, the cell becomes gradually collapsed and flattened, so as to present an elliptical form, and the latter is by degrees converted into the flat cell, composed of two parallel and contiguous layers, with an included nucleolated nucleus. By the increasing influence of the atmo-

sphere, the flattened cell desiccates into a thin horny scale, in which the nucleus is difficult to discover, and the scale itself is thrown off by a process of desquamation.

From this description, it is apparent that the epidermis must be composed of a series of strata of nucleolo-nucleated cells, which exhibit a progressive stage of flattening, from the plastic fluid and cyto-blasts of the deepest layer, to the thin and horny scales with almost obliterated nuclei of the outermost layers. It is this peculiarity of disposition that enables us to split the epidermis into laminæ, and the deepest of these laminæ, composed of the soft and newly-formed cyto-blasts and cells, constitutes the so-called rete mucosum. In the deepest layer of the epidermis, the cyto-blasts are connected with each other by means of the unemployed portion of the plastic lymph which constitutes an inter-cellular substance; but this medium is speedily lost, probably by endosmosis, in the formation of cells. The cells are connected only by their adherent parietes, and the flattened cells and scales by their surfaces and borders.

14. It follows, from a review of the structure of the epidermis, that this membrane is accurately modelled on the papillary layer, that each papilla finds its appropriate sheath in the newly-formed epidermis or rete mucosum, and that each irregularity of surface of the former has its representative in the soft tissue of the deep layers of the latter. It is not, however, the same with the external surface of the epidermis; this is modified by attrition and exposure to chemical and physical influence; the minute elevations, corresponding with the papillæ, are, as it were, polished down, and the surface is consequently rendered smooth and uniform. The palmar and plantar surfaces of the hands and feet are an exception to this rule, for in these situations, in consequence of the large size of the papillæ, and their peculiar arrangement in rows, ridges corresponding with the papillæ are strongly marked on the superficial surface of the epidermis. Moreover, upon the borders of the fingers, where the linear-disposed and magnified papillæ of the palmar surface gradually pass into the irregular and minute papillæ of the dorsal surface, a transition state of the epidermis may usually be observed.

15. Besides the form bestowed upon the epidermis by its relation with the dermis, its degree of thickness will be found to be dependent upon the same source, and to bear an accurate proportion to the degree of development of the papillæ. Thus, on the palms of the hands, where the papillæ are large, the epidermis is thick; while on the backs of those organs, or on the scalp, where the papillæ are small, it is exceedingly thin.

16. Another character presented by the epidermis is also to be considered as the consequence of its connexion with and dependence upon the dermis—namely, the net-work of linear furrows, which every where intersect each other, and trace out the surface into small polygonal and lozenge-shaped areæ. These lines correspond with the folds of the dermis produced by its movements, and are most numerous where those movements are the greatest, as in the flexures, and on the convexities of joints. Some difference is perceived in the form of the areæ, when examined in these two situations; thus in the flexures of the joints they are narrow and long, and, for the most part, lozenge-shaped in their figure, while on the convexities of joints, as upon the elbow and knee, the areæ are large, and more nearly quadrangular.

17. The deeper tint of colour of the skin observable among the nations of the south, and in certain regions of the skin of the European, is due to the presence of pigment in the cells of the epidermis. The pigment cells are most abundant in the furrows of the dermis, and in the hollows between the papillæ, and in this situation, from pressure against each other, are irregularly polyhedral, and sometimes hexagonal in figure.

The pigment consists of minute, flat, and oval-shaped granules, which are enclosed in greater or smaller number in the epidermic cells. So long as the granules are surrounded by the fluid of those cells, they retain all their depth of tint, but when desiccation of the cells takes place, and the cells are converted into scales, the pigmentary granules dry up, and their colour is destroyed. It is for this reason that the deeper layers of the epidermis are always richest in pigment, while in the superficial strata, the tint approaches to a whitish gray. The production of pigmentary granules is not limited to the horizontal stratum of the dermis, they are also met with in the various inflexions of the epidermis, constituting sudoriparous and sebaceous glands, and hair-follicles. It is in consequence of the presence of pigmentary granules in these inflexions that we are enabled to perceive the organs to which they belong with greater facility; and, for the same reason, we discover pigmentary granules in the perspiratory and sebaceous secretions.

18. The chemical composition of the pigment of the skin may be inferred from the analysis of the pigmentum nigrum oculi made by Scherer.\* The principal elementary substances composing this pigment were found in the following proportions:—

Carbon	.	.	.	.	58.273
Hydrogen	.	.	.	.	5.973
Nitrogen	.	.	.	.	13.768
Oxygen	.	.	.	.	21.986

19. The identity of structure of the external tegument or skin, with the internal tegument or mucous membrane, has long been established. In both, the same parts are found, and each is continuous with the other. Mr. Bowman, of King's College, whose remarks, founded on careful and persevering observation, are always important and deserving of attention, again directs our notice† to this fact, and adduces another point of similitude between these membranes. He finds beneath the epithelium of mucous membranes, on the one hand, and in contact with the vessels of the parenchyma on the other, "a simple, homogeneous expansion, transparent, colourless, and of extreme tenuity:" this delicate expansion serves as a foundation on which the epithelium rests, and in accordance with this view he terms it the "*basement membrane*." This is, in fact, the boundary layer of all vascular membranes, and as such is met with in serous as well as in mucous structures. The extreme tenuity of the basement membrane may be inferred from the measurements instituted by Mr. Bowman; in the uriniferous tubuli its thickness does not exceed  $\frac{1}{20000}$  of an inch; in the seminiferous tubuli it is  $\frac{1}{10000}$  of an inch in thickness; in the lungs, it forms almost the entire thickness of the air-cells; and in no situation has it been found to exceed  $\frac{1}{8000}$  of an inch. Reasoning from analogy, Mr. Bowman

\* Liebig, Organic Chemistry.

† Cyclopædia of Anatomy and Physiology; Article, Mucous Membrane.



infers the existence of a corresponding membrane on the surface of the dermis, an inference that will be unreservedly accorded him; but he finds it difficult to demonstrate this membrane in the latter situation, in consequence of its close adherence to the vascular rete, and deeper seated strata. The same difficulty exists on the general surface of the mucous membranes, and for the same reason; but, in the minute tubuli of the secreting glands, the connexion between the basement membrane and the vascular rete is so slight, that they separate on the gentlest pressure. In like manner Mr. Bowman finds no difficulty in distinguishing this membrane in the tubuli of the sudoriparous and sebaceous glands. Mr. Bowman remarks, that it is the basement membrane which gives firmness and form to the minute tubuli of secreting glands.

20. The sudoriparous glands are situated deeply in the integument—namely, in the subcutaneous areolar tissue, where they are surrounded by adipose vesicles. They are small, oblong bodies, composed of one or more convoluted tubuli,\* or of a congeries of globular sacs,† which open into a common efferent duct, and the latter ascends through the structure of the dermis and epidermis, to terminate by a funnel-shaped and oblique aperture or pore upon the surface of the latter. The efferent duct presents some variety in its course upwards to the surface. Below the dermis it is curved and serpentine, and having pierced the dermis, if the epidermis be thin, it proceeds more or less directly to the excreting pore. Sometimes it is spirally curved beneath the dermis, and having passed the latter, is regularly and beautifully spiral in its passage through the epidermis, the last turn forming an oblique and valvular opening on the surface. The spiral course of the duct is especially remarkable in the thick epidermis of the palm of the hand and sole of the foot. In those parts of the body where the papillæ of the dermis are irregularly distributed, the efferent ducts of the sudoriparous glands open on the surface with equal irregularity, while on the palmar and plantar surfaces of the hands and feet, the pores are situated at regular distances along the ridges, at points corresponding with the intervals of the small, square-shaped clumps of papillæ. (§ 8.) Indeed, the apertures of the pores seen upon the surface of the epidermic ridges give rise to the appearance of small transverse furrows, which intersect the ridges from point to point.

21. The efferent duct and the component sacs and tubuli of the sudoriparous gland are lined by an inflection of the epidermis. This inflection is thick and infundibuliform in the upper stratum of the dermis, but soon becomes uniform and soft. The infundibuliform projection is drawn out from the duct when the epidermis is removed, and may be perceived on the under surface of the latter as a nipple-shaped cone. A good view of the sudoriferous ducts is obtained by gently separating the epidermis of a portion of the decomposing skin; or they may be better seen by scalding a piece of skin, and then withdrawing the epidermis from the dermis. In both of these cases it is the lining sheath of epidermis which is drawn out from the duct.

The epidermic lining of the efferent duct and secreting sacs of a sudoriparous gland is composed of cells of the kind termed by Mr. Bowman *spheroidal particles*. These particles are rounded in form, or rather, polyhedral, being flattened by their contact with contiguous surfaces. They are generally met with in the ducts and tubuli of glands, and usually

\* Muller. Giraldès, 1841.

† Gerber.

constitute only a single layer. They differ from the cells of the laminated epithelium, in containing an "amorphous" and "finely mottled" substance, which surrounds the nucleus, and preserves the form of the particle. In glands, Mr. Bowman observes that the membranous covering of the spheroidal particles is lost, but in other situations it is persistent; and comparing the spheroidal with the laminated cell, he remarks the striking difference between them of "maturity being marked in the one by the disappearance of the substance of the cell, and in the other by that of the cell-membrane." Even in situations where the cell-membrane of the spheroidal particles is persistent, the particle never flattens into a scale.

22. The subaceous glands are sacculated glandular organs embedded in the substance of the dermis, and presenting every variety of complexity, from the simplest pouch-like follicle excavated in the thickness of the dermis to the sacculated and lobulated gland. In some situations the excretory ducts of these glands open independently on the surface of the epidermis, while in others, and the most numerous, they terminate in the follicles of the hairs. The subaceous glands associated with the hairs are racemiform and lobulated in their structure, consisting of sacculi, which open by short pedunculated tubuli into a common excretory duct, and the latter, after a short course, terminates in the hair-follicle. In the scalp there are two of these glands to each hair-follicle. On the nose and face I have found the glands of large size, and distinctly lobulated, and constantly associated with small hair-follicles. In the meatus auditorius the sebaceous (ceruminous) glands are also large and lobulated; but the largest of all are those of the eyelids, the Meibomian glands. The Meibomian glands consist of a central excretory duct, into which numerous small sacculated lobules open upon all sides by means of short pedunculated ducts. The excretory ducts of sebaceous glands offer some degree of diversity in different parts of the body; thus, in many situations, they are short and straight, while in others, as in the palms of the hands and soles of the feet, where the epidermis is thick, they assume the spiral arrangement observed in the sudoriferous ducts. The sebaceous ducts and glands are lined by an inversion of the epidermis, which forms a thick and funnel-shaped cone at its commencement, but soon becomes uniform and soft. The structure of the epidermic lining of the sebaceous glands is identical with that of the sudoriparous glands. (§ 21.) Sebaceous glands are met with in all parts of the body, but are most abundant in the skin of the face, and in those situations which are naturally exposed to the influence of friction.

23. Hairs are horny appendages of the skin, produced by the involution and subsequent evolution of the epidermis; the involution constituting the follicle in which the hair is enclosed, and the evolution, the shaft of the hair. Hairs vary much in size and length in different parts of the body; in some they are so short as not to appear beyond the follicle, in others, they grow to an enormous length, as on the scalp; and along the borders of the eyelids, and on the beard, they attain to a very considerable thickness. Hairs are generally more or less flattened in their form, and when the extremity of a transverse section is examined with the microscope, it is found to present an elliptical or reniform outline. This view of a hair exhibits also an important fact with regard to its structure—namely, that the hair is porous and loose in texture in the centre, and dense in its circumference, affording some ground for the statement of its constitution of a cortical and medullary portion. The free extremity of a hair is generally pointed, and some-

times split into two or three filaments. Its attached extremity is implanted deeply in the integument, extending through the dermis into the subcutaneous areolar tissue, where it is surrounded by adipose vesicles. The central extremity of a hair is larger than its shaft, and is called the root, or bulb. It is usually infundibular in form in the larger hairs, and conical in the smaller hairs, and in those of the head.

24. At the bottom of each follicle is a vascular and sensitive formative substance, or pulp, which is analogous to a papilla of the dermis, and is the producing organ of the hair. The process of formation of a hair by its pulp is identical with that of the formation of the epidermis by the papillary layer of the dermis. A stratum of plastic lymph is, in the first instance, exuded by the capillary plexus of the pulp; this plastic lymph, or blastema, undergoes conversion, firstly, into cyto-blasts,\* and then into cells; and these latter are lengthened out so as to correspond with the axis of the hair, and constitute a fibrous structure.

This is the mode of formation of the greater part of the diameter of the hair; but the cells of the superficies comport themselves differently, in order to provide the polished surface which is characteristic of these structures. In this situation, as upon the surface of the epidermis, the cells are converted into flat scales, which enclose the fibrous structure of the interior. These scales, as they are successively produced, overlap those which precede and give rise to the rough and waving lines which may be seen around the circumference of a hair. It is this overlapping line that is the cause of the roughness which we experience in drawing a hair from its point to its bulb between the fingers, and the loosened state of the borders of these scales has given rise to the notion entertained by Leeuwenhoeck, of branches growing out from the shaft. The bulb is the newly-formed portion of the hair, it corresponds in figure with that of the pulp, and its expanded form is due to the greater bulk of the fresh cells, as compared with the fibres and scales into which they are subsequently converted in the shaft of the hair.

25. The colour of hair, like that of the epidermis, is due to the presence of pigmentary granules, contained within the cells. In the white hair of Albinoes, there is a total absence of the colouring principle of these granules, and in some forms of the blanched hair of age, a white pigment supplies the place of the tint of early life.

26. Mandl entertains some peculiar views with regard to the structure and mode of growth of hair. He describes a hair as consisting of a cortical portion, which is cellular, and a medullary portion, which is tubular. Through the latter, he conceives that the fluids of the hair ascend, and are deposited at the free extremity of its shaft, in successive layers, each layer becoming gradually smaller in diameter, until the hair eventually assumes the form of a fine point. This structure is indicated on the tapering extremity of a hair, by a series of annular lines. The mode of growth here described he believes to be proved by the production of a pointed end upon hairs which have been cut, and also by the whitening of hair, which sometimes commences at the point. The latter fact he explains by the transmission of colourless fluids to the end of the hair. Besides this mode of increase, he admits that another takes place at the root, by apposition.

27. The development of hair has been made the subject of research

\* Dr. G. Simon thinks that the cyto-blasts do not become cells, but are converted directly into fibres. Muller's Archiv., 1841, p. 361.

by Heusinger and Simon.\* The latter of these gentlemen has observed, that in the embryo of the pig, at an early period, the epidermis is inflected from point to point, so as to form follicles somewhat enlarged at their extremity, which pass obliquely inwards, and enter the tissue of the dermis. These follicles are rendered conspicuous from being lined in their interior with pigment granules, which, in the darker parts of the body, are deep in colour, and white in the uncoloured portions. In embryos more advanced in growth, he finds a collection of pigment granules at the bottom of the follicle, which assume the form of the root of the future hair. Subsequently to this formation, the pulp makes its appearance. At a later period, the entire hair is formed, and is bent upon itself, so that the point and root are nearly approximated. In this bent condition, the young hair bursts through the aperture of the follicle. After a time these hairs are thrown off, and are succeeded by the permanent hairs.

The sebaceous glands appear much later than the hair-follicles, and are developed by a similar process of epidermic inflection from the parietes of the hair-follicle.

28. According to the analysis of Vauquelin, the chemical constituents of hair are—animal matter, in considerable proportion; a greenish black oil; a white, concrete oil, in small quantity; phosphate of lime; carbonate of lime, a trace; oxide of manganese; iron; sulphur and silex. Red hair contains a reddish oil, a large proportion of sulphur, and a small quantity of iron. White hair, again, exhibits a white oil, with phosphate of magnesia. The gray hair of old persons contains a maximum proportion of phosphate of lime.

The ultimate analysis of hair, according to Scherer,† exhibits the principal elementary constituents in the following proportions:—

Carbon . . . . .	50·652
Hydrogen . . . . .	6·769
Nitrogen . . . . .	17·936
Oxygen . . . . .	} 24·643
Sulphur . . . . .	

Fair hair contains the least carbon and hydrogen, and most oxygen and sulphur; black hair follows next; while brown hair gives the largest proportion of carbon, with somewhat less hydrogen than black hair, and the smallest quantity of oxygen and sulphur. The hair of the beard was found to contain more carbon and hydrogen than the hair of the head, and less oxygen and sulphur. The quantity of nitrogen is the same in all.

29. The nails are horny appendages of the skin, identical in formation with the epidermis and hair, but peculiar in their mode of growth. A nail is convex on its external surface, concave within, and implanted by means of a root into a fold of the dermis, which is nearly two lines in depth, and acts the part of a follicle to the nail. At the bottom of the groove of the follicle are situated a number of filiform papillæ, which produce the margin of the root, and by the successive production of cells push the nail onwards in its growth. The concave surface of the nail is in contact with the dermis, and the latter is covered by papillæ, which

\* Zur Entwicklungsgeschichte der Haare, Von Dr. Gustav. Simon. Muller's Archiv., 1841.

† Liebig, Organic Chemistry.

perform the double office of retaining the nail in its place, and of giving it increased thickness, by the addition of newly-formed cells to its under surface. It is this constant change occurring in the under surface of the nail, co-operating with the continual reproduction taking place along the margin of the root, which ensures the growth of the nail in its proper direction. For it is clear that if the adhesion of the concave surface of the nail with the dermis were not perfectly soft and yielding, the addition of successive layers of cells to the follicular margin would be wanting in the force necessary to push it forward in the direction of its growth. The nail derives a peculiarity of appearance from the disposition and form of the papillæ upon the ungueal surface of the dermis. Thus, beneath the root of the nail, and for a short distance onwards towards its middle, the dermis is covered by papillæ, which are more minute, and consequently less vascular, than the papillæ somewhat farther on. This patch of papillæ is bounded by a semilunar line, of which the concavity is turned towards the root, and in consequence of appearing lighter in colour than the rest of the nail, has been termed the *lunula*. Beyond the lunula, the papillæ are raised into longitudinal plaits, which are exceedingly vascular, and give a deeper tint of redness to the nail. These plait-like papillæ of the dermis are well calculated by their form to offer an extensive surface, both for the adhesion and formation of the nail. The cytoblasts and cells are developed on every part of their surface, both in the grooves between the plaits, and on their sides, and a lamina of nail is formed between each pair of plaits. When the under surface of a nail is examined, these longitudinal laminæ, corresponding with the longitudinal papillæ of the ungueal portion of the dermis, are distinctly apparent, and if the nail be forcibly detached, the laminæ may be seen in the act of parting from the grooves of the papillæ. This laminated structure upon the internal surface of a nail is seen in a magnified form in many animals, for instance, in the perpendicular wall of the hoof of the horse. Moreover, it is this structure that gives rise to the ribbed appearance of the nail, both in animals and in man. The papillary structure of the dermis, which produces the nail, is continuous around the circumference of the attached part of that organ with the dermis of the surrounding skin, and the horny structure of the nail is consequently continuous with that of the epidermis.

30. In a chemical analysis of the horny tissue of nail, Scherer\* found the elementary constituents in the following proportions:—

Carbon . . . . .	51.089
Hydrogen . . . . .	6.824
Nitrogen . . . . .	16.901
Oxygen . . . . .	} 25.186
Sulphur . . . . .	

31. In a physiological point of view, the skin is an organ of sensation, absorption, and secretion; in the former capacity it affords us gratification, and warns us of the presence of injurious or destructive agents; by means of the second, it is enabled to appropriate the fluids contained in the surrounding medium, and perform the office of a respiratory organ; and, by means of the third, it provides for its own softness and pliancy,

\* Liebig, Organic Chemistry.

it regulates the influence of temperature, both external and internal, and acts as an important depurating organ of the blood.

32. The sensibility of the skin varies normally in different parts of the body; thus it is greatest on the pulps of the fingers, and least in the middle of the limbs, as of the thigh and arm. This has been proved by the curious results of the researches of Weber, who applied the points of a pair of compasses to the skin, in various parts of the body, in order to ascertain the degree of sensibility of the skin in the perception of a double impression. Thus, upon the pulp of the middle finger, the two points were felt when only separated from each other to the extent of one-third of a line; on the palmar surface of the same finger it was necessary to separate them two lines; on the cheek, five lines; forehead, ten lines; on the middle of the breast, twenty lines; and on the middle of the arm and thigh, thirty lines. He observed, moreover, that the delicacy of perception was greatest in the direction of the branches of the nerves, as, transversely on the face and front of the neck, longitudinally on the fingers, &c.\* The same author has pointed out some remarkable instances of differences in the perception of temperature; thus, he has shown that if the two hands be immersed in water of the same temperature, that in which the left is placed, will feel the warmest; and again, that a weak impression made upon a large surface of skin, produces a more powerful effect upon the nervous system than a strong impression upon a small surface. This is practically illustrated by taking hot water, and immersing the finger of one hand, and the entire of the other hand; the single finger will suffer no inconvenience from the heat, while to the hand it may be insupportable. In pursuing the investigation of diseases of the skin, we find hourly instances in proof of these facts.

The sensibility of the skin is subject to considerable modification under the influence of disease; the natural sensibility may be heightened, or it may be diminished, or, again, it may be altered. These changes obviously depend on some modification of the nervous system, the nature of which is, for the present at least, beyond our grasp. The more common morbid sensations of the skin, in addition to heat and cold, are, itching, tingling, smarting, pricking, shooting, creeping, tickling, burning, scalding, &c.

33. By means of its absorbing power the skin is enabled to act as a respiratory organ. The importance of this function in man is not sufficiently estimated, but in the lower animals it is universally acknowledged. The process of absorption in the skin is effected by an active endosmosis, which is more and more controlled by vital influence, as it reaches the strata of the epidermis most nearly in contact with the dermis. This function of the skin is calculated to enact an important part in the health of the individual, in relation to the purity or impurity of the atmosphere in which he moves.

34. When the body is immersed in water of a certain temperature, say at 28 centigrade,† and a few degrees below, and allowed to remain in it for some time, it increases in weight by absorption of the fluid. This fact is proved by the experiments of several physiologists. Westrumb‡

\* I have repeated these experiments, and the results are truly surprising.

† Berthold, in Muller's Archiv. for 1838.

‡ Journal Hebdomadaire, No. 7.

detected the ferrocyanate of potash in the urine of a man who had taken a bath, which contained that salt in solution; and D'Arcet found the urine of another alkaline, who had bathed in the Vichy waters. Other experimentalists have even succeeded in discovering colouring matters, such as rhubarb, in the urinary secretion after bathing in water containing such substances. Opposite results to these—namely, loss of weight by transpiration, takes place whenever the temperature of the bath nearly approaches or exceeds that of the body. These experiments have another important bearing on the physiology of the skin, since they prove that the temperature of a bath which conduces to absorption has the effect of a sedative on the system, and diminishes the rapidity of the pulse, while the converse, acting as an excitant of exhalation, increases the frequency of the heart's pulsations.

35. The absorbent property of the skin is sometimes taken advantage of for the purpose of introducing nutritive matters into the system, and at others, for the exhibition of medicinal substances. Some of the latter produce their characteristic effects when simply applied to the surface by means of a bath or poultice; but more frequently we find it necessary to resort to the additional aid of friction, and, moreover, we select those parts of the skin in which the epidermis is thinnest. The substances to be absorbed must be presented to the skin in the state of solution, or suspension in water or oil; but it must be admitted that the quantity taken into the system is very small. The exhibition of medicinal substances by friction on the skin, termed the *Iatroleptic method*, is only adapted for the more powerful medicines, and is rarely employed at the present day, excepting in the instances of mercury, croton oil, strychnine, &c. The epidermis acts as an impediment to absorption, and as such, as an important safeguard against the admission of injurious and poisonous substances into the system. Thus we find that it is only after long soaking, or by long-continued friction, that we are enabled to overcome this natural defence, and then only to a very partial extent. But when the epidermis is removed, the case is altogether altered. The dermis is a highly absorbent tissue, and medicinal substances and poisons, when brought in contact with it, frequently act with as much rapidity and energy as when introduced into the stomach. On this account the *endermic method*, as it is called, offers some advantages when medicines disagree with the alimentary canal, or are repelled with loathing, by the patient. In the adoption of this method of administering medicinal agents, it is necessary to raise a blister in the most expeditious and least painful manner, unless there be an open wound already present, and then sprinkle the substance, in a state of fine powder, over the surface. It follows, therefore, that such medicines can alone be administered in this manner, as produce their effects in very small doses, such as strychnine, morphine, digitalis, belladonna, &c. The absorbent power of the skin is sometimes painfully evinced in the inflammation of the kidneys which follows the application of a blister, in the constitutional effects resulting from the absorption of lead, or in those which succeed the use of arsenic to ulcerated surfaces.

36. The softness and pliancy of the skin are, in great measure, dependent on the secretion of the sebaceous substance which is poured out on every part of its surface. This secretion is most abundant in situations, where, from the influence of physical action, the skin would be liable to

injury were it deprived of a similar covering. Thus we find it in large quantities on the head and face, upon the trunk of the body, in the armpits, and in the perineum. The sebaceous secretion is an oily fluid, containing stearine, oil globules, and pigment granules, together with epidermic cells thrown off by the parietes of the glands and ducts. The secretion is modified in its qualities in different parts of the body, in some, by the presence of an odorant principle, and in others, by a peculiarity in taste or colour. Of the former, is the butyric acid of the perineal region, and the latter, the yellowish brown and bitter product of the sebaceous glands of the meatus auditorius, the ceruminous glands. In chemical composition, sebaceous substance consists, according to Esenbek,\* of

Fat . . . . .	24.2
Osmazome, with traces of oil . . . . .	12.6
Watery extractive . . . . .	11.6
Albumen and caseine . . . . .	24.2
Carbonate of lime . . . . .	2.1
Phosphate of lime . . . . .	20.0
Carbonate of magnesia . . . . .	1.6
Acetate and muriate of soda and loss	3.7
	100.0

37. The function of the skin as a regulator of the temperature of the body, and as a purifier of the blood, is effected by means of a peculiar secretion, the perspiration. When this secretion is eliminated in the form of an imperceptible vapour, it is termed *insensible*, and when condensed or poured out in a fluid state, *sensible* perspiration. The insensible perspiration is partly derived from the sudoriparous glands, and partly from the natural evaporation taking place from the epidermis. Lavoisier and Seguin estimate the mean quantity of perspiration, both insensible and sensible, secreted by the skin in the course of twenty-four hours, at thirty-three ounces, while they assign to the pulmonary exhalation, twenty-one ounces. The experiments of Dr. Dalton furnished him with different results, since he attributes to the lungs an amount of exhalation five times greater than that of the skin.

38. The quantity of perspiration is altered by a variety of circumstances which affect the body physically, or through the agency of the nervous system. Of the former kind are the temperature, current, and hygrometric condition of the atmosphere and stimulation of the skin; and of the latter, excited or depressed nervous powers. When the temperature of the atmosphere is unusually elevated, and the air dry, perspiration takes place with so much activity, as to preserve the heat of the body at its natural standard. If, instead of being still, the atmosphere pass over the surface in a current, the quantity of perspiration is still farther increased, and the cooling influence is more felt. But if, with the same temperature, the atmosphere be loaded with moisture, perspiration is prevented, and the heat of the body becomes intense. The influence of stimulation in the promotion of perspiration is shown in the effects of exercise, of the warm bath, diaphoretics, &c. Instances of the influence of the nervous system are exhibited in the total arrest of perspiration during the hot stage of fever, and of its great increase under emotions of a depressing kind, as fear and anxiety, and also in syncope.

\* Gerber's General Anatomy, edited by Gulliver.



The secretion of perspiration is also modified by the greater or less activity of the other secretions, particularly of the lungs and kidneys, the function of these organs being frequently vicarious with the skin, and vice versâ. Thus, during the summer, and in warm climates, the perspiratory secretion is augmented, while the exhalation from the lungs and the quantity of urine are diminished. In the winter and in cold climates the reverse of this is the case. On quitting a warm apartment, especially after indulgence in stimulants, for the cold air, a sudden check is given to the cutaneous function, while that of the kidneys is suddenly and actively called into exercise. The same fact is observed in certain diseases; thus, the excessive sweats of phthisis may be regarded as vicarious of the diminished exhalation from the lungs, while diabetes is accompanied by a remarkably dry state of the skin. The arrest of perspiration again, from cutaneous disease, is often attended with serious congestions of the mucous membranes.

39. The recent experiments of M. Fourcault\* throw considerable light on the importance to health of the secreting function of the skin. The results of the observations made by this gentleman go to show, that if the cutaneous transpiration of an animal be wholly prevented by means of an impermeable covering, the animal will die in a short space of time apparently in a state of asphyxia. Becquerel and Breschet, pursuing their experiments on animal temperature, conceived, that if they could prevent transpiration by the skin, they should induce internal fever; the contrary, however, was the fact. After the application of a thick layer of varnish upon the skin of a rabbit, and adjusting their thermo-electric needles, they found the temperature of the deep muscles, in the course of half-an-hour, to be reduced from 38 to 32; in another half-hour, 24.5; and in a third half-hour, it stood at only three degrees above the temperature of the atmosphere, 17; so that, in the course of an hour and a half, the temperature of the animal had fallen eighteen degrees, and the creature died.

40. The chemical constituents of perspiration are, water, nitrogen, osmazome; carbonic acid with its salts, carbonates of soda and lime; lactic acid with its compound, lactate of ammonia; chloride of sodium, hydrochlorate of ammonia, phosphates of soda and lime, sulphate of soda, salts of potash, and oxide of iron. Anselmino, who has bestowed the latest attention to this subject, gives the following analysis† of the dried residue of the perspiratory secretion:—

Matters insoluble in water and alcohol, chiefly calcareous salts . . . . .	2
Animal matter soluble in water, insoluble in alcohol, regarded by Anselmino as salivary matter (?), and sulphates . . . . .	21
Matters soluble in dilute alcohol—viz., chloride of sodium and os- mazome . . . . .	48
Matter soluble in alcohol, osmazome, and lactates . . . . .	29
	100

41. The quantity of water excreted by the skin bears reference to the circumstances above detailed—namely, the comparative activity of the exhaling organs, the condition of the atmosphere, and the state of the system.

\* *Examineur Medicale*, Oct. 1841.

† *Muller's Physiology*, Translation, page 579.

The nitrogen, according to Liebig, originates chiefly in the decomposition of the atmospheric air carried into the stomach with the saliva, or absorbed from the exterior by means of the skin. During digestion, the oxygen of the atmospheric air enters into combination with the food, and the nitrogen is set free to make its way by endosmosis through the stomach and diaphragm into the lungs, or through the parietes of the body to the skin. It follows, therefore, that the quantity of nitrogen set free in the stomach, and, consequently, the quantity exhaled by the skin, is proportioned to the duration of digestion. Thus, in certain herbivorous animals in whom the process of digestion occupies a long period, and is increased by rumination, a large quantity of atmospheric air is conveyed into the stomach, and a larger proportion of nitrogen is extricated from the skin than in carnivora. The same circumstance must take place when any cause exists which retards digestion. The quantity of carbon also bears reference to the nature of the ingesta; where a large quantity of carbonic acid is generated in the stomach, the gas makes its way directly to the lungs, as did the nitrogen, or to the skin. Dr. Dalton estimates the proportion of carbon eliminated by the skin, irrespective of variety in food, at one-twentieth of the entire quantity of perspiratory secretion. To the osmazome, the ammonia, and the lactic acid, are to be ascribed the powerful odour of the perspiratory fluid, while its acid re-action is determined by the latter.

## CHAPTER II.

### CONGESTIVE INFLAMMATION OF THE DERMIS.

42. UNDER the general title of congestive inflammation of the dermis, I have assembled a group of diseases, which are characterized, as a leading feature, by inflammation, and consequent redness of the skin. This group, with some exceptions, corresponds with the Exanthemata of Willan, and embraces all the diseases included by our eminent countryman under that order, with the omission of purpura. Reviewing the prominent features of this group of diseases, it will be perceived that they admit of a natural division into two sub-groups—namely, into such as are characterized by

*Inflammation of the dermis and mucous membranes, with constitutional symptoms of a specific kind,*

under which head I have ranged

Rubeola,  
Scarlatina,  
Variola,  
Varicella,  
Vaccinia,

and,

*Inflammation of the dermis, without constitutional symptoms of a specific kind,*

which embraces

Erysipelas,  
Urticaria,  
Roseola,  
Erythema.

43. The diseases contained in the first of these groups are the exanthematous or eruptive fevers of medical practice. They are characterized by fever of greater or less severity, which precedes and accompanies the exanthem; by an exanthem, or inflammatory congestion of the dermis, which makes its appearance in the form of red points, and pursues a spe-

cific course ; and by their mode of termination—namely, in resolution and desquamation of the epidermis in the first two, and by exudation and incrustation in the variolous affections ; while all are liable to terminate by delitescence.

44. Taking this view of the exanthematous diseases, I conceive myself warranted in placing the variolous affections in a group with which all their analogies harmonize. They correspond accurately with the definition I have given above ; the premonitory symptoms present a close resemblance with rubeola and scarlatina ; the eruption is identical at its first appearance, and the general management required is the same. At a later period, when variola assumes the pustular form, it must be regarded, as far as pathology is concerned, in the light of an advanced stage of rubeola and scarlatina, or as a severe type of the latter diseases expending its violence on the skin, instead of retrograding on the mucous membranes. Certainly, if we admit, with hesitation, the variolous diseases to a place among the exanthematous fevers, we are bound to rescue them from the unpathological position which they at present occupy among the Pustulæ and Vesiculæ of Willan's classification.

45. The severity of the febrile symptoms of exanthematous diseases is determined primarily by the nature and activity of the exciting cause of the disease, by the state of constitution of the person affected, and by the greater or less freedom of evolution of the morbid action upon tegumentary textures. Secondly, it is modified by the extent and severity of the exanthem, or, in other words, by the reaction of the effects upon the system. The constitutional symptoms are also much modified by the extent of surface diseased. When that surface is great, as is necessarily the case where not merely the dermoid layer, but the whole mucous membrane of the body is affected, the peripheral and sentient parts of a considerable proportion of the nerves of the body are involved in the inflammatory disorder, and, as a consequence, the spinal and cerebral symptoms reach their highest pitch of severity and danger.

46. The congestion of the superficial capillary vessels which accompanies the exanthemata is not limited to the dermoid tissue alone, but is distributed more or less completely over the tegumentary surface of the entire body, including the mucous membranes. From the great susceptibility of the latter, they are generally the first affected, as we perceive to be the case in the angina of scarlatina, and the catarrh and conjunctivitis of rubeola. In like manner, erysipelas, urticaria, roseola, and erythema, have all their mucous inflammations, though presenting a sub-acute and less conspicuous type. This difference, however, is always apparent between the inflammation of the cutaneous surface and that of the mucous membrane. In the former, the inflammation either invades the entire surface at once, or runs regularly and more or less rapidly over it ; but in the mucous membranes, the different parts are affected irregularly and in succession, while some escape altogether. Thus, in the scarlatina, the mucous membrane of the fauces is first invaded, then possibly, that of the lungs, while, perhaps, at the close of the disease, when a favourable convalescence is expected, the inflammation may be transferred to the alimentary canal, or kidneys, and prove fatal by exciting an uncontrollable diarrhœa or anasarca. The same remarks apply equally to rubeola ; for after the violence of the cutaneous efflorescence has passed away, there is yet much to be apprehended from secondary inflammations of the mucous membranes.

47. The immediate seat of the inflammatory congestion of the exanthemata is the vascular rete of the dermis, and the difference of tint observable in these diseases at their height and during their decline, is sufficiently explained by reference to the structure and normal phenomena of the skin. When the degree of excitation of the cutaneous nerves is small, and the arterial determination but little exalted above the ordinary standard, the vascular rete of the dermis is only partially congested, and the redness produced by this congestion is slight; such is the redness, with slight modifications depending on degrees of intensity of nervous excitement, which is seen in erysipelas, roseola, and erythema. When, however, the nervous activity is aroused to its highest pitch of energy, as in scarlatina, the congestion is most intense, and the bright scarlet of the arterial blood coursing through its vessels is little obscured by the thin veil of epidermis which binds it in its sphere. The congestion in rubeola, scarlatina, and variola, is not confined to the parallel strata of the vascular rete of the dermis, as in the second group of exanthemata, but many of the papillæ of the dermis are also distended with blood, and give rise to that punctiform appearance of the redness which is characteristic of these eruptions.

48. The crescentic form of the congested patches seen in rubeola, depends upon some unexplained peculiarity in the distribution of the cutaneous nerves, and corresponds with that natural appearance of the skin which is so frequently seen in healthy children, and which is denominated, mottled. Again, I have observed, that in injecting the limb of an infant with size and vermilion, I can imitate all the forms of redness seen in the exanthematous diseases, by ceasing to inject from time to time, or by filling the capillaries to their uttermost.

49. The decline of congestion of the dermis is accompanied by certain alterations in the tint of redness which betokens its presence. Thus the red patches are observed to lose their vivid brightness, to become duller in their hue, and to pass through various shades of purple, until they become bluish and livid. These changes depend upon the degree of excitement of the cutaneous nerves at the several periods indicated by alteration in the colour of the exanthem. When the nervous energy is at its highest point, the capillaries contract actively upon their contents, and maintain a rapid current of arterial blood through their channels. But as the nervous excitement becomes gradually allayed, the capillaries lose their power to contract, and become distended by the full stream that moves more and more tardily onwards in its course, giving time to the arterial current to combine with the carbon of the tissues through which it flows, and become converted into venous blood.

50. The above phenomena will explain, also, the differences of colour which the exanthem may assume at an earlier period than its decline, and even from the commencement of its appearance, as, for instance, in scarlatina maligna, or more strikingly in rubeola nigra. The first step or motive influence by which this change is effected, is depression of nervous power; this depression, depriving the capillaries of their tonicity, or, in other words, of their means of resisting the pressure of the arterial current, they yield, they become dilated, and from capillaries, which they were, they are converted into a venous plexus, through which the blood moves feebly and slowly, gathering carbon in its tardy course.

51. Congestion of the capillary rete of the dermis, necessarily gives rise to tumefaction, the extent of swelling being, to a certain degree, the mea-

sure of the increased quantity of blood distributed through the part. Hence it is obvious that all exanthematous patches must be raised above the level of the surrounding skin, even although the degree of tumefaction be really very slight.

52. Another cause of tumefaction in an inflamed and congested tissue, also follows as a natural consequence from the over-distention of its vessels. I have already endeavoured to show that the nervous excitation of the part must have diminished before over-distention of the capillary vessels can take place, but so soon as that change has ensued, another phenomenon is immediately developed. This is transudation of the watery part of the blood by imbibition into the surrounding textures, thereby physically relieving the congested vessels of their overload of fluid. The fluid which is thus transuded through the coats of the vessels is serum, containing in solution more or less of fibrine. The seat of this imbibition is for the most part the subcutaneous areolar tissue, where it gives rise to œdema. I may instance scarlatina in some cases, erysipelas œdematosum, and erythema læve, as particular illustrations of this kind of tumefaction, although it will be found, upon close observation, to be much more extensively present among the exanthemata. This important phenomenon is not confined to the dermoid tissues, it occurs also in the mucous membrane, and sometimes with fatal consequences, as, for instance, in the laryngitis of scarlatina and rubeola, where it is apt to induce œdema of the glottis.

53. Besides the œdema resulting from serous infiltration into the subdermoid tissues, it may happen that the transudation occurs also in the tissue of the dermis itself, in which case the skin presents a red, bloated, and brawn-like appearance, as in some forms of erysipelas. Or again, not confined to the subdermoid and dermoid tissues, the serous fluid may, after the repletion of those textures, be effused upon the surface of the dermis, and raise the epidermis in the form of vesicles and bullæ, as we frequently see to be the case in common erysipelas. This character associates erysipelas with the third natural group of diseases of the skin—namely, with inflammation of the dermis, combined with serous effusion upon its surface, including the orders Bullæ and Vesiculæ of Willan.

54. As the whole of the diseases included in the first of the preceding groups are infectious and contagious, it may be well to inquire the precise meaning which we attach to these terms. In their more usual acceptation, the terms infection and contagion relate to modes of transmission of a poisonous principle. When the transmission is effected by a material substance, and is brought about by actual contact, the term *contagion* (immediate contagion) is employed; but when transmission is effected through the agency of the winds, and at a distance, the mode of communication is designated *infection*, (mediate contagion.) In other words, when the poisonous principle is volatile, and capable of diffusion in the atmosphere, it is infectious; but when this diffusibility is absent, it is simply contagious.

55. In whatever way the poisonous principle be brought to the body of a sound person, and with whatever part of his body it may come in contact, whether with the cutaneous surface with or without abrasion, as in contagion, or with both the cutaneous and mucous surface in infection, the mode of its reception by the system is the same. In the first instance, it is dissolved in the fluids of the body, and, in the second place,

is conveyed by imbibition into the circulating current of the blood, thence to act on the nervous system, and alter its functions. Once introduced into the system, the poisonous principle possesses the remarkable power of exciting an action similar to that which existed in the body whence it emanated, the intention of that action being the reproduction of an identical poison. Liebig has compared this process to fermentation; as, when a particle of yeast is brought in contact with a fermentable fluid, the particle of yeast is itself lost, or is too insignificant to be traced farther; but the action which it excites occasions the formation of an abundance of similar yeast.

56. In certain diseases regarded as contagious, another mode of transmission occurs; the principle of contagion exists in the form of germs or seeds of a parasitical organism, which, wafted to a soil fitted for their nutrition, become developed, and assume an active growth. Of this kind are the parasitic fungi found upon the surface of the bodies of animals, and especially the mycoderma of the crusts of favus. Langenbeck found fungi in the body of a man who died of typhus fever. Professor Owen has seen them coating the internal surface of vomicæ in the lungs of the flamingo; and similar observations have been made by other observers.

57. The most interesting, as it is the most important of the phenomena of morbid poisons, is the modification which they produce in the system of the affected person. By virtue of this modification, the susceptibility to be excited by a similar stimulus, or to take on a similar action, is deteriorated, and, in many instances, entirely abolished. We might recur again to the simile suggested by Liebig, for we are incapable of again exciting fermentation in a fluid that has already fermented. It is upon this important principle that safety from a repetition of attacks of eruptive fever reposes.

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I. INFLAMMATION OF THE DERMIS AND MUCOUS MEMBRANES, WITH CONSTITUTIONAL SYMPTOMS OF A SPECIFIC KIND.

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R U B E O L A.

Syn. *Morbilli*. *Blactiæ*. *Measles*.—*Rougeole*, Fran.—*Masern*, *Kindspecken*, Germ.

58. Rubeola, or measles, is an acute inflammation of the tegumentary investment of the entire body, both cutaneous and mucous, associated with fever of an infectious and contagious kind.

Upon the skin, it is characterized by a patchy redness, which, on close examination, is found to be produced by numberless minute red points, aggregated into small patches of a crescentic and annular form. The efflorescence makes its appearance on the fourth day from the commencement of the febrile symptoms, increases for another four days, and is succeeded at its decline by furfuraceous desquamation of the epidermis.

Rubeola usually attacks children and young persons, but may occur at any period of life; infants and adults, however, are but little susceptible

of its influence. Its effects have been observed in the fœtus at birth, (Hildanus,) where the mother has suffered from the disease during pregnancy. The period of incubation of the contagion varies from seven to fourteen days, and the same individual may be affected more than once. Its punctated appearance depends upon congestion of isolated papillæ, and the semilunar form of the patches, upon some unexplained peculiarity in the structure of the dermis, probably having reference to the distribution of the cutaneous nerves. The mottled aspect of the skin of children in health, and exposed to the cold, has the same semilunar tracery, and an analogous state may be produced artificially by incomplete injection with size and vermilion.

59. The varieties of rubeola are four in number—namely:

- Rubeola vulgaris.
- „ sine catarrho.
- „ sine exanthemate.
- „ nigra.

#### RUBEOLA VULGARIS.

60. In rubeola vulgaris, the ordinary form of measles, the disease sets in with the usual symptoms of fever—namely, with chills, succeeded by burning heat, listlessness, languor, drowsiness, pains in the head, in the back, and in the limbs; frequent pulse; soreness of the throat, white tongue, with red edges and tip; thirst, anorexia, nausea, vomiting, frequent dry cough, and high-coloured urine. These symptoms increase in violence during the first four days. On the third, the conjunctivæ look red and inflamed, there is intolerance of light, and the eyelids are congested and swollen, while a profuse secretion of lachrymal fluid distils from the eyes, constituting *coryza*. The mucous membrane of the nose also pours forth a large quantity of watery secretion, and the irritation of this membrane gives rise to frequent sneezing. Inflammation of the mucous membrane of the larynx, trachea, and bronchial tubes, is indicated by hoarseness, impeded respiration, constriction and pain in the chest, and violent cough. Moreover, children are affected occasionally with spasm of the muscular system and convulsions, the consequence of reflex action of the spinal nerves; these spasmodic attacks are especially frequent where rubeola is complicated by dentition.

The cutaneous efflorescence of rubeola makes its appearance on the fourth day, and is attended with heat and itching; in children with a delicate skin it appears occasionally on the third; and, in some instances, from exposure to cold, or deficient susceptibility in the skin, on the fifth or sixth. It is first perceived on the forehead and front of the neck, next upon the cheeks, and around the nose and mouth, and if the interior of the latter cavity be inspected, it may be seen, with similar characters to those exhibited on the surface of the body, upon the mucous membrane of the fauces and pharynx. By the fifth day, the efflorescence on the face reaches its height; it then appears upon the trunk of the body and upper extremities, and on the succeeding day upon the lower extremities. On the sixth day, the rash upon the body and limbs reaches its height. The backs of the hands are the parts last affected, the rash appearing on them not before the sixth day, and sometimes as late as the seventh.



The efflorescence of rubeola, when closely examined, is seen to consist of innumerable punctiform dots, aggregated into small circular patches, which, by their increase or coalescence, assume an irregularly crescentic form. The patches are slightly raised above the surface, and the entire skin is somewhat swollen. The colour of the rash at its acme, is a bright raspberry red; on the eighth day, it presents a yellowish red tint, and then gradually fades to the normal standard of the skin. Occasionally a crop of pimples are mingled with the efflorescence on the more exposed parts of the body, as upon the face and hands, and this is particularly the case in infants and adults. In more rare instances, miliary vesicles have been observed to complicate the rash, and in a case recorded by Willan, inoculation with the lymph of these vesicles was found to produce a perfect attack of rubeola, which was communicated by infection to several other children.

The decline of the efflorescence takes place in the same order with its invasion, fading on the sixth day, upon the face; on the seventh day, upon the trunk and limbs; and on the eighth day, upon the backs of the hands. On the ninth day, the form of the patches is alone discoverable by the presence of a pale yellowish discolouration, which slowly disappears. To these changes a furfuraceous desquamation succeeds, which is attended with considerable itching.

Of the constitutional symptoms, some are relieved on the outbreak of the efflorescence, while others are aggravated. Thus the nausea and sickness subside on the fourth day, the restlessness and sense of oppression disappear on the sixth day, while the coryza, the catarrh, the hoarseness, and the cough, with the frequency of the pulse, decline on the seventh day. At about the ninth or tenth day, the resolution of the congestion of the intestinal mucous membrane is indicated by diarrhœa of some days' continuance.

It has been already remarked, that the mucous membrane of the eyes and of the pharynx is visibly affected with the rash. Other symptoms which occasionally develop themselves during the progress of rubeola, indicate an equal congestion of the internal mucous membrane. Thus, in some cases, there is hæmorrhage from the nose; in others, from the air-passages; and in females, not unfrequently from the uterus. Whenever the rash is checked in its course by cold or other causes, the constitutional symptoms are aggravated and dangerous, the congestion of the mucous membranes is greatly heightened, the tongue becomes brown and dry, and the patient delirious.

61. Although rubeola, when it runs its course regularly, is by no means a dangerous disease, yet, at its close, it is occasionally attended by severe and alarming sequelæ, which call for the most vigilant attention on the part of the medical practitioner. Thus the cough, after the subsidence of the rash, may return with increased force and frequency, and be accompanied by a quickened pulse, impeded respiration, and symptoms of hectic fever, and lead to a fatal issue, by effusion into the lungs and chest, or by the development of scrofulous tubercles. Children are sometimes seized with difficulty of breathing from swelling of the mucous membrane of the air-passages and larynx, and die, unless relieved by tracheotomy, in the course of a few hours. The conjunctivitis which was symptomatic of the disease during its progress, may continue in a chronic form and give rise to ulceration of the eyelids. The inflamma-

tion of the pituitary membrane of the nose may merge into the chronic form, and pour out a purulent secretion. The mucous membrane of the mouth and fauces in infants may develop aphthæ and troublesome ulcerations; and in children of riper years, tumefaction of the lips and ulceration of the angles of the mouth. The salivary glands may become enlarged by the propagation of the inflammation along their excretory ducts. In some instances, abscesses resulting in fistulous ulcers have been formed in these glands. The diarrhœa, which usually ceases spontaneously after the lapse of a few days from the disappearance of the efflorescence, may continue uncontrollable for several weeks, and issue fatally from ulceration of the mucous membrane. The lymphatic system may sympathize in the effects of the cutaneous irritation, and occasion enlargement of the glands, which sometimes form abscesses and ulcers, or where the mesenteric glands are affected, the little patient may be destroyed by interference with the current of the chyle. In other instances, secondary affections of the skin are developed, in the form of vesicles, pustules, and furuncles. When these cutaneous eruptions appear during the violence of the mucous irritation, the visceral disease is considerably relieved, and the recovery favourable.

Measles are most prevalent, and the accompanying catarrh most severe during the winter, and particularly during the first three months of the year. On the other hand, in the summer season, and during the warm weather, the disease, when it occurs, is mild and subdued.

#### RUBEOLA SINE CATARRHO.

62. This form of measles is perfectly identical with rubeola vulgaris, with the exception of the catarrhal and febrile symptoms, which are either exceedingly slight or wholly absent. The efflorescence is precisely similar and follows the same stages. Rubeola sine catarrho is usually observed during the prevalence of an epidemic of measles, when some children will be found to be attacked by the simpler variety, while the greater number are seized with the disease in its ordinary form. It is not unfrequently met with in one member of a family, when the rest of the children have the more severe disease; and this is especially the case where a number of children are congregated together, as in a public school. Rubeola without catarrh is sometimes the immediate precursor of rubeola vulgaris, and children affected by this form are more liable to a second attack of measles than those who have experienced an attack of the ordinary variety.

#### RUBEOLA SINE EXANTHEMATÈ.

63. As measles may occur, divested of their mucous inflammation, constituting the previous variety, so, in more rare instances, the febrile symptoms and mucous inflammation may be developed, with only a partial efflorescence, or, according to some authors, with no cutaneous affection whatever. Rubeola sine exanthemate, when it exists, is observed under the same circumstances with those in which the previous variety appears—namely, as isolated cases during the progress of an

epidemic among the members of a family affected with measles, or in a large assemblage of children. Sydenham refers to this form of disease under the name of febris morbillosa, and Dr. Gregory contributes additional testimony to its existence. “Guersent,” says Rayer,\* “has observed some individuals in families where measles prevailed, exhibiting all the other symptoms of the disease, except the eruption. I have myself several times seen cases of measles, in which the eruption was incomplete, and which might have been referred to the morbillary fever of Sydenham; but I have never met with any instances like those mentioned by De Haen, Gregory, and M. Guersent, although my attention has been turned to this point these some years past.”

#### RUBEOLA NIGRA.

##### *Rubeola maligna.*

64. In a debilitated state of the system, the cutaneous capillaries become over-distended, and the circulation through them retarded, while some portion of their contents is effused into the surrounding tissues. This condition of the vessels gives to the efflorescence a purplish and livid appearance, with which a tint of yellow is intermingled, and, in certain situations, a variable number of small spots bearing a close resemblance to petechiæ. This form of measles is rare, and has been described by Willan under the designation of rubeola nigra. It commences with all the characters of rubeola vulgaris, and runs the usual course until about the seventh or eighth day. At this period, the pulse becomes quickened, there is great lassitude, with prostration of the vital powers, and the appearance of the rash alters to the purplish and livid hue above noted. Sometimes the constitutional symptoms put on a more severe character, the respiration is quick and impeded, the cough troublesome, the digestive organs much disturbed with parched mouth and nausea; probably delirium and effusion into the serous cavities, with œdema of the cellular tissue. With these aggravated symptoms, the disease is likely to terminate fatally. Rayer remarks, that he has “seen various examples of these livid measles in children labouring under tubercles of the lungs and chronic cæco-colitis, and who were exhausted by diarrhœa and hectic fever.”

65. Rayer has also remarked a variety of “black or hæmorrhagic” measles which are unconnected with constitutional debility, and characterized by a vinous-coloured efflorescence not disappearing under pressure with the finger. He met with this form in strong individuals, and he finds a transition to such a modification in the greater depth of colour, and non-disappearance under pressure of some of the patches in an ordinary case of rubeola vulgaris.

66. *Diagnosis.*—The diagnostic characters of rubeola are, firstly, the affection of the mucous membrane, as indicated by redness of conjunctivæ, coryza, catarrh, sneezing, sore throat, and cough, by which the disease may be distinguished, even before the appearance of efflorescence; and, secondly, by the crescentic patches of the rash, with intermediate unaffected portions of skin.

From scarlatina it is distinguished by the crescentic patches; the redness

\* Treatise on the Diseases of the Skin, translated by Dr. Willis, p. 145.

is also more intense, and uniform or nearly so, in this disease. Moreover, in scarlatina there is no coryza, catarrh, or sneezing.

In roseola as in scarlatina there are none of the signs of inflammation of the mucous membrane so conspicuous in rubeola.

The minute spots by which the efflorescence of rubeola first makes its appearance are not unlike those of variola, especially on the face and forehead, where they are slightly papular; but upon the trunk and limbs this difference is always apparent between them—namely, that in measles the red points are mere spots, while in variola, they are distinctly elevated papulæ.

67. The cough of rubeola is at first dry and harsh, at a later period expectoration ensues, the expectorated mucus presenting some peculiarities which are deserving of notice. Rayer describes appearances as follows:—"At first mucaginous, clear, and limpid; at the end of three or four days the expectoration becomes thick, rounded into pellets, smooth on the surface, of a greenish-yellow colour, remaining perfectly distinct from each other, and swimming in a large quantity of ropy and transparent mucus, similar to the matter coughed up by some phthisical patients. By-and-bye this form of expectoration is changed for another which adheres to the bottom of the vessel, and seems composed of a grayish homogeneous mucus, mixed with air and saliva, and very similar to the ordinary matter expectorated during chronic catarrhal affections. In young people the expectoration is wanting, or not at all abundant; and many cases of measles occur in older subjects without being attended with expectoration." Chomel remarks the following difference between the nummular expectoration of rubeola and phthisis—namely, that in the former, the nummuli swim in a transparent fluid, and in the latter, in one which is opaque.

The diagnosis of the varieties of rubeola needs no especial mention.

68. *Causes.*—Rubeola would seem to have originated in Arabia, the birthplace of variola and scarlatina, and to have extended with them to Europe and the rest of the world. It was first described by Rhazes. The most remarkable epidemics of measles which have occurred in this country, are those of London in 1671, 1674, 1763, and 1768, having Sydenham for their historian, and the epidemic of Plymouth in 1741, recorded by Huxham.

Measles are the consequence of a special infection, or contagion; under the influence of which, conjoined with a favourable state of the system, rubeola is developed. In many cases the disease is sporadic or epidemic in its eruption, in others it is communicated by contagion. The experiments of numerous authors have shown that the exanthem may be transmitted by inoculating a sound person, either with the blood, with the fluid of the accidental vesicles which sometimes complicate the rash, or with the secretions of those affected with the disease.

Measles may occur at any period of life, but are most frequent in children. The disease is more universally contagious than any of the exanthematous fevers, but is only partially protective of the constitution; for instances are by no means rare, in which the same individual has more than once been affected by the disease. The most obvious condition influencing the attack of rubeola, is inflammation of any of the mucous membranes, such as catarrh, cough, &c. This, indeed, constitutes a morbilious constitution, and the disease is most prevalent at the period when such a constitution is most likely to exist—namely, during the early months

of the year. Successive epidemics of measles are usually characterized by some peculiarity either in the intensity of the disease, or variety in the affection of especial organs.

Patients affected with measles must be secluded from those who are sound, in order to protect the latter against contagion. The period for the maintenance of seclusion is not rightly determined, but for the sake of security should be prolonged to at least three weeks.

69. *Prognosis.*—Rubeola may generally be regarded as a mild disease, particularly when it runs its course regularly, when the symptoms of inflammation of the mucous membranes are not severe, and the season temperate. The circumstances which are calculated to render it serious are, irregularity in its course; its occurrence during dentition, pregnancy, after parturition, or in persons suffering for some time previously from chronic disorder of an internal organ, particularly the lungs; retrocession of the cutaneous eruption; acute affection of the viscera, as of the lungs, the alimentary canal, &c., or severe secondary disorder. Rubeola nigra is dangerous only when complicated with excessive debility, or with any of the unfavourable conditions above specified.

70. *Treatment.*—When the disease is mild and regular in its course, milk diet, subacid diluents, a cool and equable temperature of the sick chamber, with some simple mucilaginous drink to quiet the cough, will be all the treatment required. Indeed, the less the patient be interfered with by the employment of medicines, the better.

If the febrile symptoms run high, saline aperients and diaphoretics may be employed; but active purgatives are calculated to be injurious, either by determining a retrocession of the eruption, or by exciting a diarrhœa not easily to be checked. Moreover, it must be borne in mind, that diarrhœa occurring at about the ninth or tenth day is a natural consequence of the resolution of the fever. When from any cause the diarrhœa is protracted beyond its proper period, it may be admonished by a gentle purgative. An emetic at the commencement of the attack is approved by many practitioners, and is often useful.

When the cough is violent, the respiration frequent and difficult, with pains in the chest denoting inflammation of the lungs, abstraction of blood must be resorted to. In children, weakly adults, or old persons, leeches to the chest, or cupping in this region, will be sufficient. In persons of stronger habit, general bleeding from the arm will be found necessary. In the country, many patients will bear venesection with advantage, while in crowded towns or cities this remedy must be employed with circumspection. As an auxiliary to bleeding, or as a representative when the system may be too weakly for its use, counter-irritation by blisters or stimulant liniments will be found beneficial. Opiates are available only after the violence of the febrile symptoms has subsided, and then they may be advantageously combined with a diaphoretic, as in Dover's powder.

Cold affusion has been recommended in measles, but has not gained friends, on account of the susceptibility to congestion of the mucous membrane of the respiratory apparatus. When, however, the skin is hot and dry, and so long as it continues so, sponging with cold water or with vinegar and water may be adopted with safety and comfort to the patient.

Should the efflorescence recede suddenly, and some internal organ become affected, blood must be withdrawn from the region of such organ,

and the rash recalled by means of a mustard-bath, and the application of a blister.

Rubeola nigra requires no other treatment, in addition to that above recommended, unless especial indications present themselves, in which case the latter must be managed according to the common principles of therapeutics; thus, for debility, tonics, acid remedies, &c., must be administered.

71. The sequelæ of rubeola call for a treatment especially directed to the nature of the secondary affection. For the cough and pulmonary affection, counter-irritants externally; with diaphoretic salines and ipecacuanha internally, are best suited. Where speedy dissolution is threatened from swelling and œdema of the mucous membrane of the trachea and larynx, and where the local abstraction of blood by leeches has failed to afford relief, tracheotomy must be performed. Chronic conjunctivitis and ulceration of the eyelids are best treated by the application of blisters behind the ears, or upon the nape of the neck, with a weak solution of nitrate of silver, or a collyrium of sulphate of zinc, to the parts affected; anointing the borders of the lids at bed-time with simple cerate, to prevent their adhesion during the night. The same plan of management is adapted to the removal of unpleasant secretions from the ears, with the addition, in chronic cases, of an injection of chloride of lime. Aphthous vesications and ulceration of the mouth and fauces require astringent and acid gargles, or brushing by means of a sponge, with a weak solution of nitrate of silver. In children too young to employ these remedies, a linctus containing the sub-borate of soda may be found sufficient. Ulceration around the mouth will speedily yield to nitrate of silver, or a solution of chloride of lime. When the salivary glands are enlarged, and threaten to suppurate, this termination may generally be prevented by the application of a small blister over the tumefied organ, or by blistering the surface with the nitrate of silver. The diarrhœa may be permitted to continue, unless it be prolonged for too long a time, and occasion debility and constitutional irritation. When such an event is anticipated, the best treatment will be found to be, the application of a blister on the abdomen; frictions on the legs, with a stimulating liniment; mercury with chalk, or rhubarb and magnesia, internally, in the first instance, succeeded by chalk mixture, and the usual means for checking diarrhœa. When the lymphatic glandular system is affected, the liniment of croton oil, rubbed on the integument covering the enlarged glands, will be found of great service. Indeed, any treatment for the relief of the sequelæ of measles will be inefficient, unless it be accompanied by counter-irritation. It is upon this principle that the secondary eruptive affections of the skin are found to conduce so materially to the cure of the internal disorder. These eruptive affections are therefore not to be repelled, without establishing in the first instance a more manageable form of counter-irritation, such as an open blister, &c., in which case the eruptions will gradually disappear.

During convalescence the patient should be protected from pulmonary affections by warm apparel, and avoidance of a cold and damp atmosphere.

## SCARLATINA.

Syn. *Morbilli confluentes*. *Scarlet Fever*.—*Scarlatine*, Fran.—*Scharlachfieber*, *Scharlachaufschlag*, Germ.

72. Scarlatina is an acute inflammation of the tegumentary investment of the entire body, both cutaneous and mucous, associated with fever of an infectious and contagious kind. It commences with fever, which invades at an indefinite period between the second and the tenth day after exposure to infection or contagion. On the second day of the fever, the eruption is developed in the form of minute points and papulæ, which constitute patches of large size, or a general efflorescence of a vivid scarlet colour. The rash terminates at the end of six or seven days, leaving the skin rough and harsh, and the epidermis peeling off in *furfuræ* and thin laminae.

73. The varieties of scarlatina, which are merely modifications in degree of one typical affection, are four in number—namely,

Scarlatina simplex.  
 „ *anginosa*.  
 „ *maligna*.  
 „ *sine exanthemate*.

## SCARLATINA SIMPLEX.

*Scarlatina sine anginâ*.\*

74. Scarlatina simplex, the most frequent as well as the most benign form of scarlet fever, commences with a feeling of languor and lassitude, with pains in the head, in the back, and in the limbs; with drowsiness, nausea, and rigors, these being succeeded by heat, thirst, and the usual symptoms of pyrexia, and increasing towards the evening. Upon the breaking out of the efflorescence, the pulse is quick, but feeble; the patient is anxious, depressed in spirits, agitated, restless, and sometimes delirious. The eyes are red and humid, but without lachrymation; the face is swollen; the tongue, covered in the middle with white mucus, is studded with congested papillæ of a vivid red colour, and red along the edges; the tonsils are enlarged, and the palate and pharynx red. There is a frequent dry cough, a troublesome tingling and itching sensation of the skin, and swelling of the hands and feet. Sometimes, however, it happens, that the eruption of scarlatina occurs without pain or febrile symptoms.

On the second day from the commencement of these symptoms, the efflorescence appears upon the face, neck, and breast, in the form of minute points, which become aggregated into patches of irregular form and size. By the third day, the rash has extended to the trunk of the body and upper extremities, and to the mucous membrane of the eyes, the nose, the mouth, the pharynx, and air-passages, and by the fourth day to the lower extremities. The patch-like distribution of the eruption is its

\* Dr. Robert Williams.

normal character upon the trunk of the body. On the face, the neck, and upon the limbs, it speedily becomes continuous and diffused. The skin is hot and itching, and fully distended by the congestion of its vessels. The scarlet surface is sometimes uniform and smooth, (*scarlatina plana vel levigata*,) at other times, and in some situations, it is dotted with elevated points of a deeper tint than the adjoining surface, and is rough and granular to the touch, (*scarlatina papulosa vel milliformis*,) and occasionally, though rarely, it is accompanied by the development of serous vesicles, (*scarlatina vesicularis, vel phlyctænosa, vel pustulosa*.) The efflorescence attains its most vivid redness upon the evening of the third or fourth day from its commencement. It is always brighter in the evening than in the morning, and in certain parts of the body, as upon the loins, the nates, and flexures of the joints, than upon the rest of the surface.

The decline of scarlatina commences on the fifth day from the eruption; the redness diminishes on those parts first where it first appeared; islets of skin of its natural hue begin to be apparent in the midst of the redness, and epidermic desquamation occurs upon the face and neck. On the sixth day, the efflorescence has still farther decreased, and on the seventh has nearly disappeared. On the eighth and ninth days, the desquamation of the epidermis has become general, and, in many parts, laminae of considerable size are thrown off. The resolution of scarlatina is sometimes accompanied by a sudden and temporary renewal of the rash, preceded by a febrile paroxysm.

#### SCARLATINA ANGINOSA.

##### *Scarlatina mitior.\**

75. Scarlatina anginosa is a modification of simple scarlatina, and is especially characterized by severity of the inflammation of the mucous membrane of the fauces and pharynx, and by swelling and ulceration of the soft palate and tonsils.

The primary symptoms of this variety of scarlatina are identical with those of the simpler form of the disease, but more violent. The fauces from the commencement, and often before the invasion of the symptoms, are redder than natural. There is a rapidly increasing sense of constriction about the throat, and a stiffness of the muscles of the neck, and of the jaw. Upon the second day of the febrile symptoms, the throat feels rough, the voice is hoarse, there is a large collection of viscous mucus in the fauces, and deglutition is painful and difficult. On the third and fourth days, the redness of the fauces has increased, the mucous membrane looks turgid and swollen, and is studded with patches of false membrane and superficial ulcerations. The uvula and tonsils are so much enlarged as nearly to block up the isthmus faucium, and the tongue is coated with white mucus, and appears set with red gems, from the congestion and elongation of its papillæ. While the local affection is thus rapidly progressing, the constitutional symptoms are indicative of serious and dangerous disturbance. There is nausea with vomiting, quickened respiration, a quick and feeble pulse, great languor and restlessness,

\* Dr. Robert Williams.



headach, delirium, and excessive heat of skin, 104° or 105°. Heberden observed the temperature of the surface as indicated by the thermometer, to be 112 degrees of Fahrenheit.

When ulceration of the mucous membrane of the fauces occurs, the inflamed surface is seen to be studded on the second or third day with a number of white patches, around which the congested vessels form a zone of deep red. From the fifth to the tenth day the whitish patch or false membrane is thrown off, and leaves a small superficial ulcer, which quickly heals. Ulceration takes place chiefly in irritable constitutions, and at certain seasons of the year, as, for instance, during the autumnal and winter months.

The cutaneous eruption in scarlatina anginosa is retarded by the severity of the affection of the mucous membrane, and of the constitutional symptoms. It fails to appear until the third day, and is then only partial in its efflorescence. Upon the trunk of the body it forms scattered patches of variable size, while upon the limbs it is developed chiefly around the joints. It endures longer than the eruption of scarlatina simplex, and the desquamation which ensues upon its decline is less regular and extensive. Occasionally the rash disappears suddenly the day after its eruption, to return in a day or two. This occurrence takes place more frequently in the autumn and winter season than during the rest of the year, and is either fatal in its consequences, or an aggravation of the constitutional severity of the disease.

The decline of the eruption takes place on the fifth or sixth day, and at the same time the severity of the inflammation of the fauces subsides, the sloughs are thrown off, and the ulcerations begin to heal. The latter process, however, and the disappearance of the congestion of the mucous membrane, are not accomplished before the fifteenth or twentieth day. When the throat and fauces only begin to be affected at the height of the rash, or even at its decline, the dispersion of the inflammation is postponed till a later period. The constitutional symptoms follow in the train of the affection of the throat.

#### SCARLATINA MALIGNA.

##### *Scarlatina gravior.\**

76. Scarlatina maligna is a highly aggravated form of scarlatina anginosa, occurring in persons of debilitated constitution, principally in the winter months of the year, and in damp, unhealthy, and ill-ventilated situations. Sometimes it makes its attack sporadically, while at other times it invades suddenly and unexpectedly during the progress of scarlatina simplex or anginosa.

The chief characteristics of scarlatina maligna are, the extreme prostration of the powers of the system, the absence of swelling of the tonsils, and the extensive and deep sloughing ulcerations of the fauces. The pulse, in this affection, is irregular, and scarcely perceptible; there is great restlessness, deafness, delirium, and coma. The eyes look red and sunken, there is an acrid secretion from the nose, which produces soreness

\* Dr. Robert Williams.

and excoriation around the nostrils. The cheeks are swollen and aphthous. The lips, the teeth, and the tongue, are covered by a dark brown or black fur. The tongue is swollen and tender, or even ulcerated, and the tonsils are deeply ulcerated, and covered with dark-coloured sloughs. Respiration is impeded, quick, and rattling; there is a quantity of viscous phlegm in the pharynx; the breath is fœtid; deglutition painful and difficult; there is stiffness of the muscles of the jaws, diarrhœa, and sometimes hæmaturia.

The eruption in this form of scarlatina is late in appearance; it is pale and indistinct, with the exception of a few patches of irregular size, which speedily become dark and livid, and mingled with petechiæ. "Their whole skin," writes Dr. Sims,\* "instead of the scarlet, assumed a very remarkable appearance, which resembled nothing so much as that of a dead body which has been kept several days, or as if a mixture of blood and water were universally diffused under it, and could be seen through it." The duration of the rash is equally uncertain with its period of invasion. "In some instances, the rash suddenly disappears a few hours after it is formed, and comes out again after the expiration of a week, continuing two or three days; in one case, numerous patches of it appeared a third time, on the seventh day from the second eruption, then remained for two days."

Scarlatina maligna is an extremely fatal disease, as may be inferred from the severity of its symptoms. Some patients are cut off at an early period—namely, on the second, third, or fourth day, while others withstand its violence for a longer period. Those who perish early, exhibit appearances of extensive ulceration in the fauces, larynx, trachea, lungs, or in the œsophagus and alimentary canal, after death. The great fatality of this disease may be inferred from the observation of Willan, that "in 1786-7, more than two-thirds of those who were affected with the scarlatina maligna died between the seventh and nineteenth day of the fever."

#### SCARLATINA SINE EXANTHEMATE.

##### *Scarlatina sine eruptione.*†

77. During the progress of an epidemic of scarlatina, some few cases have been occasionally observed, in which the fever and angina were present, but without any, or with a scarcely perceptible efflorescence. Such an instance once fell under my own notice, in a weakly child, who slept in the same apartment with three of his brothers and sisters, suffering from the ordinary attack of scarlatina simplex. This form of the disease is more frequent in a secondary attack, before the health has become completely re-established, than as a sporadic variety, and is more likely to occur in the adult than in children.

\* Memoirs of the Medical Society of London.

† Dr. Robert Williams.

## ACCIDENTAL MODIFICATIONS OF SCARLATINA.

78. When so extensive a surface of the body is affected as that which is the subject of disease in scarlatina, it is natural to expect that many modifications may arise from circumstances apparently trivial, such as those which are referrible to age, constitution, season, &c. Thus while, on the one hand, cases may occur in which all the constitutional symptoms are present without the efflorescence, on the other hand, the very reverse of this may happen. Dr. Sims remarks, "in one child the scarlet fever appeared without any angina, and having finished its course, left the patient seemingly in perfect health; but in a few days the fever returned without any eruption, but with a very considerable degree of sore throat, and much pain and swelling of the tonsils and parotids, which likewise ran its course, as if the former symptoms had never appeared." The same author observes, that during the periods of the year which are unfavourable for scarlatina—namely, in autumn and winter, "a frequent, short, hacking cough took place in several patients," without expectoration; that this symptom was most severe where the cutaneous eruption and affection of the throat were the slightest. "Another circumstance in the months of November and December was, that a few days after the apparent change of the disorder, a swelling attacked the face, but more frequently the extremities, attended with the most excruciating pain." "Some first complained of a violent toothach; after two or three days they complained of an equally violent pain in the back, the first one gradually subsiding. In a day or two more, or even sooner, the pain attacked their elbows, wrists, and hands, which were usually the parts last attacked."

## SEQUELÆ OF SCARLATINA.

79. The development of the exanthema, upon certain parts of the body, is always accompanied by more or less œdema of the subcutaneous cellular tissue. In the majority of cases this œdema is removed by absorption of the serous effusion at the decline of the eruption, but occasionally it terminates in ulceration or mortification. "Two instances of this tendency to mortification occurred in two children lately admitted into St. Thomas's Hospital. In one, the whole of the toes of the right foot had sloughed off, and the integuments of the leg had mortified from the knee to the foot. In the other, mortification of the upper lip had commenced, and continued to spread till nearly one half of the face was eaten away. The former patient recovered, the latter died. This tendency to mortification is common to many parts of the body. Dr. Watson, in his account of the fever that prevailed in the London Foundling Hospital, gives one case that died of mortification of the rectum, and also six others that died sphacelated in various parts of the body. In the girls, some had the pudendal region mortified; two had ulcers of the mouth and cheek, which sphacelated externally; while one had the gums and jaw-bone so corroded, that most of the teeth fell out before she died. The lips and mouth of many also that recovered, were ulcerated, and continued so for a long time."\*

\* Elements of Medicine. By Robert Williams, M.D. Vol. i. page 127.

In other cases at the close of scarlatina, and during convalescence—namely, during the period intervening between the tenth and twentieth day, anasarca is developed. This sequela, which is referrible to the transfer of inflammatory action to the structure of the kidneys, is serious, and often fatal. The affection is indicated by languor, headach, restlessness, and symptoms of general constitutional disturbance; to these succeed œdema of the face and lower extremities, and, in a short space of time, of the entire body. Subsequently, effusions containing urea take place into the serous cavities, and the patient succumbs. The urine in this disease, as in granular kidney, is brownish in colour, from admixture with blood, and more or less loaded with albumen. Some authors aver that they have been unable to detect albumen in the urine in these cases. Anasarca is usually regarded as a consequence of exposure to cold and damp, during the progress of scarlatina, or at too early a period after convalescence, and it occurs for the most part, during the winter season.

Besides the preceding, inflammation and effusion of serum and pus may take place into the joints. The mucous membranes also suffer; the inflammation of the conjunctiva sometimes becomes chronic, and lasts for a considerable time. Inflammation of the mucous lining of the tympanum and Eustachian tube may terminate in deafness, and that of the meatus auditorius in chronic suppuration. Occasionally, ulcerations are formed around the nose or mouth; thickening of the upper lip may also occur; aphthæ of the tongue and mouth, or inflammation of the salivary glands. When parotiditis ensues in the adult, it is apt to produce considerable swelling of the gland, which continues for a long period; in children, inflammation of this gland, and of the submaxillary glands, may give rise to asphyxia, or terminate in suppuration and abscess. Other sequelæ of scarlatina anginosa are, chronic enlargements of the lymphatic glands of the neck, swelling of the testes, chronic bronchitis, chronic diarrhœa, &c.

In scarlatina maligna the sequelæ are severe and dangerous, and often prove fatal after the secondary stages of the fever have subsided. To the tertiary affections above detailed, may be added, as occasionally following in the train of scarlatina maligna, ulceration of the mucous membrane of the larynx, trachea, and œsophagus; ulceration of the mucous membrane of the intestines, protracted cough, dyspnœa, suppuration of the salivary glands, enlargement and suppuration of the lymphatic glands of the neck, sloughing of the nates, and hectic fever.

80. *Diagnosis.*—The especial diagnostic characters of scarlatina, are, *firstly*, the decided and acute affection of the fauces; *secondly*, the early appearance (2nd day) and rapid extension of the efflorescence; and *thirdly*, the bright scarlet, and diffused character of the rash, and its frequent interspersion with red papulæ.

Between scarlatina and rubeola, the closest analogy undoubtedly subsists, and when the natural characters of the two affections are considered, the analogy approaches almost to identity; thus, both are inflammations of the tegumentary surface of the body, internal and external; both are accompanied by a cutaneous efflorescence, involving the vascular rete of the dermis; both are liable to be succeeded by serious affections of the viscera, into the structure of which mucous membrane enters as a constituent part; both appear during the prevalence of the same epidemic, engendered apparently by the same infection; one may follow on the other as a congestive disorder; both are infectious and both are contagious. In practice alone is it necessary to distinguish between these exanthemata. We will,

therefore, inquire what are the distinctions which we are enabled to establish between them?

*Scarlatina.*

1. Precusory symptoms of one day duration.

2. Mucous membrane of the eyes, nose, and fauces, red and inflamed, without secretion; pain and soreness of throat; no cough; no expectoration.

3. Eruption on the second day of the fever; invades the entire surface of the body in three days; disappears by the end of the seventh day.

4. The efflorescence occurs in large irregular patches, or is more or less generally diffused; is of a bright scarlet, compared by Willan to a "boiled lobster's shell," and frequently interspersed with numerous small red papulæ.

5. Odour resembling old cheese.

6. Principal sequelæ; anasarca; inflammation of the joints; gangrene; chronic bronchitis; ulcerations of fauces; conjunctivitis; otitis; abscess of salivary glands; chronic diarrhœa.

7. Exfoliation of the epidermis in laminæ.

8. Less infectious and contagious than measles.

9. Rarely attacks the same person more than once.

*Rubeola.*

1. Precusory symptoms of three days' duration.

2. Mucous membrane of the eyes, nose, and fauces, red and inflamed, with increased secretion, coryza, sneezing, &c.; dry cough at first, subsequently expectoration.

3. Eruption on the fourth day of the fever; occupies three days in invading the entire surface of the body; disappears by the end of the eighth day.

4. The efflorescence occurs in small, crescentic, and circular patches, with intervening unaffected portions of the skin; the colour is darker than in scarlatina, with "nearly the hue of a raspberry," and interspersed with numerous small red papulæ, disposed in clusters.

5. Odour, sweetish, until the decline of the eruption, then sourish.

6. Principal sequelæ. The same as scarlatina, with the exception of anasarca, inflammation of the joints, and gangrene.

7. Exfoliation of the epidermis in furfureous scales.

8. More infectious and contagious than scarlatina.

9. Frequently attacks the same person twice.

The differences above stated amount at most to one of *degree*, the infection being the same in both disorders. Thus, while both are constituted by inflammation attacking the same textures of the body, scarlatina, during its *first stages*, is more rapidly and actively determined to the cutaneous surface, the mucous membrane, in an equal ratio, escaping the violence of the inflammatory action. The contrary is the case with regard to rubeola; here the cutaneous determination is tardy and partial, while the mucous affection is gradual, severe, and prolonged. During the *second stages*, on the subsidence of the cutaneous congestion, the mucous membrane may suffer more or less in both, according to a variety of circumstances, such as the greater or less exhaustion of the morbid influence in the skin, the state of the nervous system, &c. These stages have no natural course in either disorder, new and accidental, or previously existing conditions, determining the resolution of the inflammation, or its attack upon some weak point of the mucous membrane.

Scarlatina sine exanthemate is distinguished from cynanche maligna by the symptoms, which indicate the presence of an acute disease, and one producing a powerful impression on the vascular and nervous systems. The alimentary system is also much disturbed, there is vomiting and diarrhœa, and the disease is apt to run its course to a fatal termination in

the lapse of a few days, or within the first week. Angina maligna, on the other hand, is slow and gradual in its progress, extending by degrees from the point first attacked along the trachea and bronchial tubes, giving rise to the formation of false membranes in its course, and attended with little constitutional disturbance, however severe may be the local affection. In a word, the observation of these two diseases, exhibits, in the former, fatality in its cause; in the latter, fatality in its effects.

81. *Causes.*—The cause of scarlatina is an infection, or contagion, apparently identical with that of rubeola. It makes its attack in the form of an epidemic, and prevails mostly in the spring and autumn seasons of the year. The atmospheric conditions favourable to scarlatina are cold and moisture combined, and the existence of this state of the weather for any time gives rise to a medical constitution, in which scarlatina is apt to be developed. When epidemics of scarlatina and measles occur at successive periods, with an interval of a certain number of years, it would appear that the fresh invasion is determined by an increase in the numbers of the population who have not yet suffered from the disease, and who are consequently susceptible of its influence. Scarlatina is less contagious than rubeola, and affects children and young persons chiefly; but many instances occur, in which adults, and especially puerperal patients, have suffered from this disease. Scarlatina rarely attacks the same person more than once, and is less easily communicable by inoculation than measles. For protection against the propagation of the contagion, patients recovering from scarlatina should be secluded for three weeks or a month.

It is worthy of remark, that an angina pseudo-membranosa, complicated in some cases with scarlatina, not unfrequently takes place, on the continent, in an epidemic form. In an epidemic of this disease lately reported to the Academy of Medicine as having occurred at Lion-d'Angers, it prevailed for the first six months of the year. During the same period, horses suffered from a similar affection, colts from acute enteritis, and cattle, sheep, and pigs, from phlyctenoid fever.

82. *Prognosis.*—The prognosis of scarlatina will be much influenced by the nature of the prevailing epidemic. It sometimes invades with such overwhelming rapidity, as to destroy life before any pathological changes can be effected. Scarlatina simplex is wholly divested of danger when it passes regularly through its course. It may, however, be rendered grave by retrocession, or by complication with disease in any of the viscera. “The prognosis is unfavourable if the delirium commences, as it frequently does in children, and sometimes also in adults, a few hours after the seizure. In these cases, the child often dies on the third or fourth day, and the adult on the eighth or tenth. The tongue becoming brown, or a clean tongue, with a rapid, fluttering pulse, are unfavourable symptoms. A sudden fading of the eruption, or its changing to a livid colour, are symptoms of danger. The danger of scarlatina is also increased by dentition. Pregnancy also adds to the danger, as the woman frequently miscarries. The prognosis is also extremely grave when it attacks women immediately after parturition.” The fauces becoming livid under any circumstances, or an acrid discharge from the nostrils, or else the formation of an extensive abscess in the neck, accompanied with severe purging, are all unfavourable symptoms. The appearance of mortification in any part is commonly, but not universally, fatal. Affection

of the joints is a grave, but by no means a fatal symptom.\* The appearance of hæmorrhage from the mucous membrane of the nose at the commencement of the exanthema is regarded as a favourable sign.

83. *Treatment.*—In scarlatina simplex, the treatment should be of the simplest kind. Sydenham remarks that none die of this disorder, except from a too great officiousness on the part of the practitioner—“*Nimia medici deligentia.*” The patient should be confined to the house, the sick apartment should be kept cool, the bed coverings light; and milk diet, with a plentiful use of diluents, enjoined. The bowels should be regulated during the progress of the disease by gentle laxatives, and at its decline, if indicated by debility, a mild tonic or a little wine may be exhibited.

84. *Scarlatina anginosa.*—In scarlatina anginosa the same general plan of management should be adopted as in the preceding form. The disposition to nausea which exists in scarlatina anginosa should be met with effervescing salines, combined with laxative doses of neutral salts. When the tonsils are enlarged and painful, and interfere with respiration, or are accompanied with pain in the head, leeches should be applied in the submaxillary region, the number being regulated by the age and strength of the patient. In moderately strong children, ten or twelve may be employed. Blisters are objectionable in these cases, for by exciting inflammation of the cutaneous surface, they act as additional sources of irritation. So long as the inflammation of the fauces continues, the saline remedies must be pursued; but as soon as the sloughs are thrown off, and ulceration established, and the febrile symptoms are on the decline, tonic medicines, with mineral acids, and wine, are indicated. Acid and astringent gargles or fumigations, or, in young children, aspersion of the throat, with an acid and slightly astringent solution, are often useful in procuring the removal of the viscid mucus and exuvia which are apt to collect in the fauces and excite nausea. They also serve to remove the fœtor which accompanies the sloughing and ulceration.

Emetics have been recommended very strongly, as a means of clearing the throat of its mucus, and, at the same time, of ridding the stomach of its peccant contents. The violence of the remedy far outweighs the inconvenience which it is proposed to remove, and although supported by the authority of Withering, emetics have fallen into merited neglect. Indeed, they are not merely negative in their effects, but are calculated to be highly injurious.

Purgatives, like emetics, have been much over-rated in the treatment of scarlatina anginosa. Willan was an advocate for the employment of calomel in purgative doses, with a view to reduce the febrile excitement and heat of surface. Dr. Hamilton also drew a favourable deduction from their use; but Dr. Robert Williams has shown that while the mortality in the cases treated by Dr. Hamilton was twelve in ninety-five, in those treated by moderate stimulants it was only three per cent.

Dr. Currie, of Liverpool, the celebrated advocate for the employment of cold water in fevers, pursued this practice in scarlatina with remarkable success, washing the surface whenever the skin was “hot and dry.” Dr. Bateman, and several other eminent physicians, adopted the practice of cold affusion, and gave the strongest evidence in its favour. The method of using the remedy is, to pour one or two pailsful of cold water over the

\* Dr. Robert Williams. *Opus. cit.*, p. 145.

patient, to rub him quickly dry, and place him in bed, where in a short space of time he falls asleep, and generally breaks out into a moderate perspiration. If the feeling of cold should continue after the bath, a little warm wine and water is administered to the patient. The effect of cold affusion is, to diminish the frequency of the pulse, to reduce the thirst and heat of skin, and to tranquillize the nervous system. If needful, it may be repeated for a second or a third time. When affusion is not thought advisable, sponging the surface with cold water may be employed as a substitute. "Cold affusion," says Bateman, "combines in itself all the medicinal properties which are indicated in this state of disease, and which we should scarcely, *à priori*, expect it to possess; for it is not only the most effectual febrifuge, but it is, in fact, the only sudorific and anodyne which will not disappoint the expectation of the practitioner under these circumstances." "Invariably, in the course of a few minutes, the pulse has been diminished in frequency, the thirst has abated, the tongue has become moist, a general free perspiration has broken forth, the skin has become soft and cool, and the eyes have brightened, and these indications of relief have been speedily followed by a calm and refreshing sleep."

Belladonna has obtained a high reputation among continental practitioners for its protective and curative powers in scarlatina. It was first suggested by Hahnemann, who had observed that all persons to whom this medicine had been given were preserved against the infection of scarlet fever. Whole towns and villages have in this way been protected. The mode of administration is in doses of a few drops of the tincture night and morning, the dose to be regulated according to the age of the person.

Both cold affusion and belladonna appear to me to act therapeutically, by virtue of their sedative effects upon the nervous system, and upon the same principle, any sedative means from which the stimulant property were as much as possible excluded would ensure the same desirable end. Cold affusion has been used with great advantage in fevers, and the sedative powers of opium have lately been employed in France for the purpose of checking inflammatory action.

Dr. Sims remarks, in relation to prophylactic treatment, "The best preventive to the disease I found to be rhubarb, taken in the quantity of a few grains every morning, so as to produce one laxative motion in the day. I did not see one who used this confined afterwards to bed, though several persons began it after they were infected, but before the time of their sickening."

85. *Scarlatina maligna*.—The vast depression of the powers of the nervous system that exists in scarlatina maligna indicates a tonic plan of treatment, conjoined with a proper regulation of the digestive system by means of gentle laxatives and attention to the local disorder of the throat. The best tonic remedies are quinine, with infusion of roses, and dilute sulphuric acid, cascarilla, hops, or canella. The tonic and nutritive properties of wine render it an invaluable remedy in these cases; the quantity which may be taken daily by a child amounts to one or three ounces, and by an adult to double that quantity. The application of leeches to the throat is contra-indicated in the malignant form of scarlatina, and, indeed, no symptoms present themselves to warrant their use. The same objections oppose themselves to the application of blisters and counter-irritants. The fauces should be fumigated with the steam of warm vinegar, with



decoctions of *contrayerva* and bark, acidulated with acetic acid, or containing camphorated spirit; or gargled with a weak solution of chloride of lime or capsicum pods. The surface of the body may be sponged with warm vinegar, but the use of cold water, so agreeable and beneficial in *scarlatina anginosa*, is painful and injurious in the malignant form.

86. *Scarlatina sine exanthemate* will require the treatment adopted for *scarlatina anginosa* or *scarlatina maligna*, according as it may put on the characters of either of the preceding forms. With the view of encouraging the development of the eruption, the skin should be stimulated by a mustard bath, by frictions with irritating applications, and by blisters.

The *retrocession* of the cutaneous efflorescence in *scarlatina* should be treated with mustard baths, the application of blisters, and the friction of stimulating liniments on the skin. An eruption, evincing a disposition to metastasis, may frequently be fixed by means of a blister.

87. *Complications of scarlatina*.—The complications of *scarlatina* call for a treatment especially directed to the organs affected. Thus, when from the presence of delirium, comatose symptoms, &c., without much inflammation of the fauces, we are led to infer congestion of the brain, leeches should be applied to the temples or to the mucous membrane of the nose, in imitation of the critical hæmorrhage which frequently occurs at the close of the disorder; and blisters should be placed behind the ears, or upon the nape of the neck. But when these symptoms are associated with inflammation of the fauces, the most ready, and, indeed, the only method of relieving them is to apply the leeches to the submaxillary region. When respiration is obstructed from congestion or œdema of the mucous membrane of the larynx or trachea, leeches should be applied over this region, and in very severe cases it may be necessary to perform tracheotomy. When the lungs or pleuræ are affected, leeches to the chest, with blisters or sinapisms, are required. When the stomach appears to be the seat of congestion, leeches to the epigastrium, and a blister or sinapism, will facilitate its restoration. Diarrhœa is to be relieved by leeches or fomentations to the abdomen, succeeded by sinapisms or a blister; and the same plan is requisite when the kidneys appear to be the organs especially disordered, the therapeutic management in the whole of these cases being aided by mustard footbaths. The cure of ulcerations in the fauces is best effected by means of a solution of nitrate of silver applied with a sponge; or by the same salt in powder blown upon the ulcerated surfaces through a quill.

88. *Sequelæ of scarlatina*.—The most important of the consequences of *scarlatina* is anasarca: this affection calls for depletion by blood-letting, if the strength of the patient warrant the remedy; the use of the acetate of potash, as a diuretic; of purgatives of calomel; of warm baths with and without mustard; of dry frictions; of heat to excite perspiration, and the application of stimulant liniments to the skin. Dr. Robert Williams recommends the supertartrate of potash, in drachm-doses, as the best purgative; and when the inflammatory symptoms have subsided, salicine in five-grain doses, as combining the properties of a tonic and diuretic; or steel medicines, such as the tartrate of iron.

The inflammation of the joints that so frequently succeeds to *scarlatina*, is combated by means of gentle purgatives, some simple sedative to relieve pain, and fomentations to the diseased articulations. Other *sequelæ* should be treated according to the general principles of therapeutics.

## VARIOLA.

Syn. *Small pox. Variole; Petite verole*, Fran.—  
*Kinderpocken, Kinderblattern*, Germ.

89. Variola is an acute inflammation of the tegumentary investment of the entire body, both cutaneous and mucous, associated with fever of an infectious and contagious kind. On the skin it is characterized by an eruption of red points, which pass through certain stages of progressive development, becoming, in quick succession, pimples (vari,) acuminate vesicles, flattened and umbilicated vesicles, pustules, and hard brown scabs; the latter falling off from the eleventh to the twenty-fifth day, and leaving behind them small irregular pits, and permanent cicatrices. On the mucous membranes it produces great congestion of the surface, and in some situations pustules, particularly in the respiratory passages. The fever of variola is of the remittent type, preceding the eruption for two, three, or four days, ceasing as soon as the eruption is developed, and returning when the eruption has reached its height—namely, on the eighth day in discreet, and on the eleventh day in confluent small-pox.

90. Small-pox admits of several divisions in relation to the origin, distribution, and degree of severity of the disease. In respect of origin, it may occur sporadically, or be the consequence of the voluntary introduction of the variolous virus into the system, constituting the two varieties termed *natural small-pox* and *inoculated small-pox*. In reference to distribution and degree, the eruption of small-pox may be *discreet*, the pustules being distinct and scattered over the surface of the body; it may be *coherent*, the pustules being very numerous, and, in many situations, placed closely side by side, but still distinct; it may be *confluent*, the pustules being very numerous, and, in several situations, so closely set, as to run one into the other, and form confluent clusters of various size; or it may be *modified*, the pustules being altered in their number, their size, and their course, either by the previous invasion of small-pox, natural or inoculated, or by vaccination. Modified small-pox is a much milder affection than the parent variola, and is termed varicella, or varioloid. Another division of variola relates to its occurrence for the first time, or as a second attack, a distinction which is expressed by the terms *primary* small-pox, and *secondary* small-pox. Besides the preceding, we sometimes have occasion to remark, during the prevalence of an epidemic of variola, the occurrence of the fever of small-pox, without its eruption; this variolous fever constitutes a variety which has been appropriately termed, *variola sine variolis*. These terms, expressive of differences in the character of variola, are chiefly useful for the purposes of communication and description. They may be comprehended at a glance, by placing them in a tabular form; thus,

Natural variola—

Discreet.

Coherent.

Confluent.

Modified.

Secondary.

Inoculated variola.

Variola sine variolis.

91. The course of variola admits of consideration in five successive periods, this division being alike convenient in the treatment and description of the disease. The periods of variola are those of incubation, invasion, eruption, suppuration, and desiccation.

I. The *period of incubation* is of variable duration, and comprehends all that space of time which intervenes between the exposure of the body to infection or contagion, and the invasion of the disease. In very severe cases, the period of incubation is short; in the milder forms, on the contrary, it is long. The limits commonly assigned to this period are from five or six to twenty days, and cases sometimes occur in which it would seem to be still farther prolonged.

II. The *period of invasion* is marked by symptoms which indicate serious constitutional disturbance. It commences with languor and lassitude, with shivering and horripilation, pains in the head, in the loins,\* and in the limbs; the skin is hot, and either dry or moist; the pulse and respiration are quickened; there is thirst and loss of appetite, with a white and furred tongue, nausea, often vomiting, constipation, pain and heat at the epigastrium, restlessness, and universal prostration. To these succeed, though various in degree in different individuals, oppression of breathing, cough, lethargy, and sometimes coma. The tongue, at the commencement of this period usually white, soon becomes red at the point, and subsequently over its entire surface. In children, convulsions not unfrequently ensue at this stage of the febrile symptoms. Throughout all the periods there is exacerbation of the febrile symptoms during the night.

In confluent small-pox the symptoms of invasion attain their highest degree of severity, there is more sickness and vomiting, the prostration of the system is greater than in the discreet variety; the tongue and lips are parched, and covered with sordes; the heat of skin is excessive; convulsions are more frequent, and sometimes there is diarrhœa.

The period of invasion lasts from two to four days, and its symptoms are instantly relieved by the succession of the eruptive period.

III. The *period of eruption* is often ushered in by a manifest exacerbation of the constitutional symptoms, which are at once and immediately relieved by the outburst of the eruption; the oppression and languor are no longer felt, the nausea and sickness cease, the pulse returns to the natural standard, and is full and regular. The eruption first appears upon the lips and forehead, and then upon the rest of the face; from the face it proceeds to the neck and arms; from the latter to the trunk, and from the trunk to the lower extremities, the entire body being pervaded in the brief space of twenty-four hours.

The development of the eruption is indicated by the appearance of small red points,† conical in their form, and hard to the touch, which are disseminated over the surface in numbers proportionate to the subsequent pustules. Thus, in the discreet variety, the spots are few and distinct; in the coherent kind, they are numerous and clustered (corymbose,) like the patches of rubeola; while, in confluent variola, they are closely aggregated, and so abundant as to diffuse a general redness over the surface. The skin is hot, tense, and shining. The red spots soon become raised,

\* M. Chomel regards the pain in the loins, which he refers to the kidneys, as pathognomic.

† By some writers these points have been compared to the spots produced by the bite of the flea.

and by the second day of eruption (fourth or fifth of invasion) have the appearance of small conical papulæ (vari,) with red and inflamed bases, and transparent and vesicular points. On the third, fourth, and fifth day of eruption (fifth to ninth of invasion,) the papular elevations, with their inflamed bases, go on progressively enlarging, the vesicles pass from a conical into a depressed and indented or umbilicated form: their contents, which were at first transparent liquor sanguinis, become whitish and milky, and a thin layer of white lymph is formed on the dermis. The umbilicated character is apparent in many of the vesicles on the third day of the eruption, and by the fourth or fifth, a distinct areola begins to be formed around each.

Similar phenomena may be observed to be taking place at the same time in the mouth and pharynx; the mucous membrane is red, swollen, and congested; there is soreness of the throat, and painful deglutition; the respiration is somewhat impeded in consequence of the extension of the inflammation to the larynx and trachea; the voice is hoarse and weak; and there is frequently a hard, dry, and troublesome cough. The eruption is developed in the larynx and trachea, on the pharynx and fauces, and on the tongue, in the form of white points, which become converted, first into vesicles, and then into pustules.

In the confluent variety, the remission of febrile symptoms is imperfect, the eruption appears a day earlier than in the discreet form, the papulæ are less raised, but so numerous as to give rise to a general swelling of the skin, which is of a deep red colour, shining and granulated. The incipient pustules constitute one continuous vesicle over the inflamed surface, formed by the effusion of liquor sanguinis or coagulable lymph beneath the epidermis. This fluid, at first transparent and limpid, becomes milky and opaque, and a thin whitish pellicle of false membrane is deposited on the dermis, and may be seen through the raised epidermis.

The confluent and the discreet variety of small-pox frequently occur together in the same individual, the eruption being confluent on the face,\* and discreet on the rest of the body. When the confluent form extends to the mouth and pharynx, the mucous membrane is covered with pustules, deglutition is rendered exceedingly painful, and respiration is seriously impeded. In the trachea the eruption gives rise to cough, and in the nasal passages to sneezing and catarrh. On the eyelids the pustules produce great tumefaction, and severe inflammation of the conjunctiva.

The eruptive period occupies five days; one corresponding with the varous stage, and the following four with the vesicular stage.

IV. The *period of suppuration or maturation* commences on the sixth day of eruption (ninth or tenth of invasion,) by augmentation of the contents of the vesicles, and conversion of their contained lymph into pus. As a consequence of this change, the vesicles lose their umbilicated character, they become spheroidal and flattened, and their whitish appearance gives place to a tint of yellow of increasing depth. Maturation is complete

\* The eruption is always most confluent on those parts of the body where some external source of irritation is added to that of the disease. Hence, the eruption is always most abundant on the face, the hands, the buttocks and inner sides of the thighs in children, &c. Sydenham remarks, that if there be 10,000 pustules on the entire body, 2000 of these will occupy the face.

on the eighth day of eruption. On the eighth day, also, the secondary fever is developed, and continues until the eleventh, during which time the pustules burst, and give exit to a portion of their contents; the period of desiccation is then established.

In the confluent variety, the inflammation, instead of being confined to a number of distinct points, is distributed over a large surface; isolated pustules, consequently, are not formed, but the production of pus occupies a district of considerable extent. On the face, the raised epidermis frequently begins to desiccate into a thin yellowish crust before the formation of pus is completed; the pus in this case is effused beneath the crust, giving to it additional thickness, and a characteristic brownish hue.

Suppuration is first perceived on the face, whence it extends to the rest of the body, showing a disposition to affect those parts first which possess the thinnest and most delicate skin. For this reason it is that the feet and hands are the parts last observed to undergo the suppurative change. The completion of the suppurative stage on the eighth day of eruption is attended with considerable pain and throbbing, with a vivid redness of the skin, with great tumefaction, and a distressing sensation of tension of the integument. The swelling affects, in the first instance, the head and face, from these it extends to the trunk and limbs, and from the latter to the hands and feet. The eye-lids are often so much swollen as completely to bury the eyes; the nose and lips are much enlarged; there is swelling and congestion of the mucous membrane of the mouth, and (in the adult) profuse salivation; the lining membrane of the alimentary canal sympathizes in the general irritation of the mucous surfaces, as may be inferred from the presence of diarrhœa. And the nervous system is greatly depressed, as is shown by the listlessness and lethargy which are conspicuous at this period.

With this extreme of local disorder, the *secondary fever* is established, and continues unabated until the close of the eleventh day of eruption. In mild cases this stage is accompanied by moderate delirium. But in more severe cases, the tongue becomes brown, the symptoms assume the low typhoid type, there is hard cough, with hæmoptysis, and sometimes hæmaturia.

In confluent small-pox, the secondary fever is not developed until the eleventh day; the symptoms are severe, and are often accompanied by restlessness, which increases towards night. This state of restlessness is a dangerous symptom.

V. The *period of desiccation* is indicated by subsidence of the tumefaction of the skin, by the drying up of the pus and purulent discharge produced during the preceding period, and by the conversion of these fluids into scabs of various thickness. Desiccation commences on the face much earlier (eighth day of eruption) than on the rest of the body, and it not unfrequently happens that crusts are present in this region before the pustules have attained maturity on the limbs. The crusts are formed in two ways, either by rupture of the pustules and desiccation of the purulent discharge which is poured out by the exposed and ulcerated surface, or by the desiccation of the entire pustule with its investing epidermis. The former is the more frequent method of their production. When the crusts fall, an event that occurs upon successive parts of the body, from the eleventh to the fourteenth day of eruption, the skin beneath is of a bright red colour, retaining this hue for several weeks, and the newly-formed

epidermis is thrown off by repeated desquamation. The cicatrices also which have been produced by the ulcerations now become apparent.

In the confluent variety, as has been already remarked, the crust on the face commences to be formed before the completion of the suppurative process, often as early as the eighth or ninth day of the eruption. This extensive crust forms a complete mask to the features, and remains attached for ten or twelve days. When it falls off, the skin beneath presents a vivid red colour, and desquamates freely, bringing into view a surface too frequently disfigured with deep pits, and seamed with extensive cicatrices. The crusts of confluent small-pox are soft and sodden with the fluids poured out by the inflamed skin, and their fall is not completed till the twentieth or twenty-fifth day.

The desiccation of the pustules of small-pox is attended with severe itching, which induces the sufferer to scratch, and often to tear the surface with his nails. By this proceeding hæmorrhage takes place from the ulcerated surface, and the drying of this fluid gives rise to a black discolouration of the scabs which form over the wounded parts. The desiccation of the pus and of the purulent discharges is attended by a nauseous and offensive odour.

#### INOCULATED VARIOLA.

92. The intent of the operation of inoculation is to bring some portion of the fluid contained within the small-pox pustule into relation, either with the papillary surface of the dermis, or with the tissues situated immediately beneath the epidermis of a sound person. When this object has been effected, the inoculated particles dissolved in the fluids of the tissues are conveyed by imbibition into the system, and communicate to the whole mass of the blood a disposition to the production of matter of a similar kind.

93. The local signs indicating that the inoculation has taken effect, are first perceived on the third day from the operation, when a slight blush of redness is seen around the puncture; this is accompanied by a trifling degree of itching, and the skin feels hard and dense when touched with the finger. On the fourth and the fifth day these signs continue gradually to increase; there is a sensation of pricking and tingling in the inoculated spot, and a small elevation begins to be formed in the centre of the areola. On the sixth day an incipient pustule is formed by the effusion of liquor sanguinis beneath the epidermis; the vesicle at this period begins to be depressed at its centre, and to assume the umbilicated appearance. On the seventh day, there is tenderness of the integument around the vesicle, and some degree of pain is felt upon moving the arm; the vesicle itself begins to look whitish and opaque; the contained lymph quickly gives way to the formation of pus, and the vesicle is surrounded by a purplish areola. By the ninth or the tenth day the pustule has lost its umbilicated character, and has attained its perfect development. After the completion of the pustule, the areola declines in redness, and its contents desiccate, the desiccation taking place during the period intervening between the twelfth and the fifteenth day, and forming a scab of a deep brown colour, and considerable thickness. The crust is thrown off from the twentieth to the twenty-fifth day, and is succeeded by a strongly marked cicatrix, which remains apparent for the rest of life.

94. The period of invasion of the constitutional symptoms in inoculated

small-pox usually commences on the ninth day. They resemble in character those of sporadic variola, but are mild, and sometimes so slight as to be scarcely recognizable. Instances are occasionally met with in which the symptoms of invasion are developed, and followed by eruption, without any signs of inflammation in the part inoculated, and consequently without the formation of a pustule.

95. The period of eruption in inoculated small-pox is irregular in its occurrence, appearing generally on the second or third day from invasion, or on the eleventh or twelfth from inoculation. Occasionally it is observed at the end of a week after inoculation, and sometimes it is protracted to a fortnight. The eruption is ordinarily very slight, sometimes failing altogether, or being scarcely perceptible; while, in rare instances, the eruption may occur at several successive periods, or the confluent variety of eruption be developed.

The eruptive period of inoculated small-pox is sometimes complicated with an erythematous inflammation of the skin, constituting variolous roseola.

#### VARIOLA SINE VARIOLIS.

96. This form of variola is rare; it has, however, been occasionally observed during the prevalence of an epidemic of variola, and is characterized by the presence of the constitutional symptoms and mucous inflammation of that disease without the cutaneous eruption. Sydenham assigned to this affection the name of variolous fever, and the accuracy of his observations have been confirmed by subsequent writers. Rayer remarks that he has never seen an instance of this variety of small-pox.

#### COMPLICATIONS OF VARIOLA.

97. Hitherto the favourable course only of variola has been described, but the disease is not unfrequently attended with *complications*, which give to it the character of a dangerous and, often, fatal disorder. These complications may occur during any one of the five periods into which the progress of the affection has been divided.

Instead of pursuing the milder course above indicated, the period of invasion is occasionally marked by symptoms of excessive severity, the accompanying fever runs high, the rigor which precedes it has been long and enduring, and the pains in the head, the chest, the præcordia, and the loins, are so violent as to lead to the suspicion of inflammation of organs situated in those regions. There is sometimes delirium and coma, at other times convulsions; and death may occur before the eruptive stage is established. In cachectic states of the system, the period of invasion is sometimes complicated with passive hæmorrhages from the mucous membranes, and from any trifling wound of the skin, and by petechiæ in the tissues of both structures.

The period of eruption like the preceding is liable to its accidents; instead of the favourable course already noted, serious congestions of one or more of the internal viscera may ensue. Sometimes the congestion is directed upon the brain and spinal cord, producing twitching of muscles, restlessness, convulsions, or coma; sometimes on the lungs, causing bron-

chitis, pneumonia or pleurisy; sometimes on the mucous membrane of the alimentary canal, giving rise to diarrhœa, dysentery, or hæmorrhage; and sometimes upon other of the abdominal organs. In cachectic diatheses, passive hæmorrhages and petechiæ may accompany this period; and under any of the above complications, the case may prove fatal before the completion of the eruption. The eruptive process is liable to suffer seriously by these complications; thus, the variolous vesicles instead of progressing, become stationary and flaccid, or distended with a sanguinolent and serous fluid.

The period of suppuration, as it is the most severe in its symptoms, is also the most dangerous in its complications, and the most frequently fatal in its results. Alarming symptoms sometimes appear with astonishing rapidity, and destroy life in a few hours, or even in a shorter period. Affections of the brain, of the larynx, and of the trachea, are most to be apprehended during this period. When these secondary affections are severe, the pustules remain stationary, or become flaccid, or are converted into sanguinolent bullæ; sometimes they are accompanied by petechiæ and passive hæmorrhages, and in rare cases disappear by the absorption of their purulent contents. The latter occurrence is always fatal. Other dangerous indications of this period are, the absence of the tumefaction and redness of the skin, the absence of salivation, the appearance of the brown tongue of low typhus, restlessness and anxiety, mortification of any part of the skin, &c.

The termination of variola is a period of much anxiety; for when the disorder has run favourably through its stages, and the danger of the disease has apparently passed away, secondary affections are not uncommonly developed, as consequences of the variolous inflammation. Such are chronic inflammation of the various mucous membranes, producing deafness, ophthalmia, opacity of the cornea, staphyloma, œdema glottidis, hæmoptysis, pulmonary tubercles, chronic bronchitis, pneumonia, pleuritis, empyema, chronic diarrhœa, &c., glandular enlargements, caries of the bones of the face, subcutaneous abscesses, furuncles, erysipelas, gangrene of the skin, disease of joints, menorrhagia, miscarriage, hæmaturia, abscess of the kidney, and numerous other sequelæ. The cause of these various complications must be referred to some peculiarity of constitution, and cannot be explained by ordinary circumstances. Sometimes they would appear to depend on the vicissitudes of season, the depth of winter and the height of summer being most frequently attended by adverse consequences.

Variola is occasionally complicated with rubeola and scarlatina, and sometimes with petechiæ. The latter form of small-pox is very severe in its affection of the mucous membranes and viscera, but the cerebral symptoms assume a milder type.

98. *Pathology.*—On examination after death of those who have fallen victims to small-pox, several of the internal organs are found to present traces of congestion, particularly the brain, the lungs, and the surface of the gastro-intestinal mucous membrane. The tissue of the lungs is generally found congested and infiltrated, and the serous coat of the blood-vessels is stained of a deep red colour. Pustules are discovered upon the mucous membrane only when the patient chances to perish at the commencement of the suppurative stage. At a later period they are usually lost, on account of the early rupture of the epithelium, which, from its



thinness and softness, is less resistant than the horny epidermis. For the same reason the pustules upon the mucous membranes never attain a size equal to those of the cutaneous surface, and rarely contain pus. When ruptured, the surfaces occupied by these pustules are found to be covered with loose laminæ, and shreds of false membrane.

The situations in which pustules have been observed on mucous surfaces are the extremities of the alimentary canal, where the epithelium is thick—namely, in the mouth, pharynx, œsophagus, and rectum. Rostan detected them throughout the entire intestinal canal. On the respiratory mucous membrane—namely, in the larynx, trachea, and bronchi, and in the urinary bladder.

99. The form of the pustule of small-pox is strikingly modified in reference to the seat of its development. Thus on the face, where the pustules advance very rapidly to maturity, they are flat, and non-umbilicated. On the palms of the hands, and on the palmar surface of the fingers, they rise gradually from the surface, are but little raised above the level of the surrounding skin, and are also non-umbilicated. On the soles of the feet, again, they are large in extent, and still more flat than the preceding, appearing like purplish disks with a distinct white margin, and non-umbilicated. Usually, the umbilicated centre presents a reddish or brownish tint, and sometimes, though rarely, it is perforated by the shaft of a hair.

100. When a well-formed and mature pustule is examined by dissection, it is found to be divided in its interior by a transverse septum into two chambers, both containing pus. The upper chamber is the larger of the two, and they communicate with each other, to a greater or less extent, by the rupture of the transverse septum around its marginal border. The epidermis, forming the superficial boundary of the pustule, is the segment of a sphere, and continuous by its circumference with the cuticle covering the adjoining skin. The transverse septum is a layer of false membrane, of a whitish colour, which was deposited on the dermis at an early stage of the pustule. Subsequently this layer becomes separated from the dermis, and raised by the formation of pus beneath it, and at the same time it is broken around its edges, and permits the pus of the deeper cavity to communicate with that already contained in the superficial chamber. In consequence of the peculiarity in the mode of its production, this layer of false membrane generally retains permanently the umbilicated form of the primitive pustule, and is thinner at the centre than towards its circumference. When this septum is removed, the deep chamber is brought into view, and the depressed and sometimes ulcerated base of the pock exposed. The surface of the base is of a bright or purplish red colour, and highly vascular.

Some difference of opinion subsists with regard to the cause of the umbilicated appearance of the pustule of variola during its early stages. Dr. Heming, many years since, attributed it to the perforation of the pustule by the efferent duct of a sebaceous gland. Velpeau, who believes that the principal seat of small-pox is in the follicles of the dermis, would, I suppose, entertain the same opinion. Other writers believe it to be produced by the pores of the skin, and Rayer refers it to the attachment of the false membrane. I am disposed to take another view of this depression, and believe it to depend on the close adhesion subsisting between the epidermis and the first affected papilla of the dermis. The inflamma-

tion of this papilla has almost completed its course before that of the surrounding papillæ has taken on the effusive stage; the central papilla consequently occupies a different pathological position to the rest of the papillæ involved in the variolous inflammation. This opinion seems confirmed by the multilocular character of the vesicle at its height, the only period when its true character can be determined. Thus Gendrin compares its appearance, when examined by means of a transverse section, to a spice-box, while Bousquet likens it to a severed orange.

101. *Diagnosis.*—The precursory symptoms of small-pox are liable to be mistaken for simple fever, or inflammation of such of the viscera as may chance to be most affected. Pains in the loins, according to Chomel, are pathognomic; the pains in the limbs are also somewhat greater than in other exanthemata, and convulsions in children are more frequent. The prevalence of an epidemic of this disease, or the previous exposure of the individual to the influence of contagion, are alone calculated to raise suspicion in the mind of the practitioner until the true nature of the symptoms is confessed by the appearance of the eruption. When first developed, the eruption presents considerable resemblance to rubeola, but from the latter it may be distinguished, as well by the nature of the previous symptoms, as by the papular character of the eruption of variola, and the rough sensation which the papulæ communicate to the finger.

It is utterly impossible to confound the mature pustules of small-pox with any of the pustular affections of the skin.

102. *Causes.*—In tracing the records of history, the first authentic notice that occurs with regard to variola, points to its ravages in the Arabian army at the siege of Mecca, in the year 569. Pursuing the track of armies, we find it raging in Egypt in 640, and subsequently following the victories of the Saracens in the eighth century, through Italy, Spain, and France. By the Saracens, the disease was communicated to the Crusaders, and the latter caused its rapid spread throughout Europe.

Small-pox occurs at all periods of life, from the fœtus in the womb to the last hours of senility. It is developed equally in the two sexes, in all seasons, and in all climates. It may appear as a sporadic affection, or epidemically. In the latter form, its invasion is most frequently observed in the summer, or the autumn season.

The cause of small-pox is a specific contagion;\* the period when transmission is most likely to happen being the suppurative stage, and when developed epidemically, it is propagated in the direction of the prevailing winds. As a general rule, small-pox attacks but once in a life-time, but to this rule many exceptions have been recorded. Instances have been observed, in which the disease has invaded a second, a third, and even so often as a sixth time. Sometimes the subsequent attack is as severe as the first, but usually the secondary affections are remarkable for mildness and rapidity of course.

The protective agency of an attack of variola against subsequent invasions of the disease, was known at a very early period in medical history; thus, inoculation was practised in Constantinople in 1673, and the practice was subsequently introduced by Lady Montague into England,

\* Several authors have imagined the cutaneous eruption of small-pox to depend upon the presence of minute animalcules; but careful observation affords no ground for this supposition.

whence it extended to the continent of Europe. The intention of inoculation is to produce an attack of the disorder, at a period when the physical powers are sound, and capable of resisting its influence, by means of inoculation. Moreover, it is found that the inoculated disease is always more mild than the sporadic affection. Several serious objections, however, raise themselves against inoculation, and one of these so great as to have been deemed worthy of a restrictive act of the legislature. The most obvious reasons that oppose themselves are—firstly, that the system is equally, perhaps more safely protected by the milder operation of vaccination; and, secondly, that inoculation often produces a severe and dangerous disease. But the most important objection to the continuance of the practice is, that the small-pox, engendered by inoculation, may be communicated to others by contagion; and, consequently, that one such case may become the source of a fatal and devastating epidemic. An instance of this kind is related of Maria-Theresa of Austria, who having inoculated a number of children, the small-pox was communicated by the latter to an entire village.

103. *Prognosis.*—In the discreet form of variola, or when the eruption is slight, and its course mild, the prognosis is favourable, usually terminating in from two to three weeks. In the confluent form there is considerable danger, and the disorder requires to be watched with care, for symptoms of a fatal nature are apt to show themselves suddenly and unexpectedly, and the disease is prolonged to three or four weeks. Small-pox is of unfavourable prognosis when it presents irregularities in its course; when it is complicated with much cerebro-spinal or pulmonary irritation; when the pustules contain a sanguineous fluid, or are intermingled with petechiæ; when the eruption is associated with debility of system in the patient, or with signs of violent depression, as fear, &c.; when the pock does not pass regularly through its stages, or when the persons affected are plethoric, and unused to disease.

104. *Treatment.*—The uncomplicated form of small-pox requires the most simple plan of treatment—namely, confinement to bed, diluents, cooling regimen, cool and equable temperature, frequent change of linen, and an attention to symptoms as they arise. Meddling in variola is calculated to be as injurious as in other eruptive diseases depending for their origin on a specific poison; and it must be borne in mind, that any vascular determination to the surface, whether internal or external, will be followed by an increase in the number of pustules developed on the irritated spot. Thus an incautious purgative at the outset of the fever may induce so great a congestion of the mucous membrane of the alimentary canal as may terminate seriously.

The treatment of variola in its simple form is consequently expectant; very little, or, indeed, nothing, is required of the practitioner during the fever of invasion. During the secondary fever some slight febrifuge saline may be given, such as the liquor ammoniæ acetatis; cooling laxatives, such as the bitartrate of potash, or Rochelle salts, or effervescent salines, may be prescribed when the bowels are confined; leeches to the mucous membrane of the nose, or behind the ears, with mustard foot-baths where the cerebro-spinal system is much disturbed; gargles for inflammation and dryness of the mucous membrane of the mouth and fauces; leeches to the epigastrium for pains in that region, with violent vomiting; mineral acids, with infusion of roses, for hæmorrhages, and emollient applications to

the eyelids where the conjunctivæ are painful and swollen. If the eruption be tardy in its appearance, the patient may be immersed in a warm bath, at the same time that tartarized antimony and sudorifics are administered internally. Narcotics are contra-indicated in the primary fever, on account of the extreme excitability of the nervous system; in the secondary fever they are less objectionable, and frequently are highly useful. Sydenham recommended a small bleeding at the commencement of the secondary fever, and following it up with an opiate; but he cautions us against abstracting too much blood. The safer practice is not to bleed, and in this opinion the profession are generally agreed.

These are the remedies which are applicable to small-pox in its ordinary and uncomplicated form; but when the disease assumes any of the unfavourable characters which have been described, other measures are indicated, such as local bleedings, and counter-irritation. Local bleeding by leeches or cupping may be employed at any period of the disease, when the symptoms indicate serious congestion of viscera; the abstraction of blood must, however, be conducted with caution, lest too great debility follow its use. Counter-irritation is applicable when the removal of blood by bleeding would be inadmissible. Under the same circumstances, again, mild purgatives may be administered, when symptoms of gastro-intestinal irritation are absent. But purgatives, it must be recollected, are calculated to excite and keep up irritation of the mucous membrane, and they may frequently be very judiciously superseded by emollient injections. At the close of the eruption, the employment of gentle laxatives is indicated, and if much debility be present, tonics should be had recourse to, and their action aided by wine and nutritious diet. When there is pain and heat of head, with delirium, which depletion from the mucous membrane of the nose and behind the ears has been unsuccessful in removing, ice may be applied to the head, or the cold water pillows recommended by the late Professor Davis for hydrocephalus, or still better, the cold cushions of Dr. James Arnott.\*

When the nervous system is especially affected, as in that variety termed by Dr. Gregory nervous variola, the administration of tonics is called for; and similar means must be adopted when there is evidence of a cachectic state of constitution, as in the occurrence of petechiæ, passive hæmorrhages, &c. Whatever the treatment adopted, however, these cases are too frequently fatal.

Cold affusion has, at various times, been extolled by eminent practitioners, but the plan has been only sparingly adopted. Some have recommended that it should be conducted in the manner laid down for scarlatina, while others confine themselves to sponging the surface of the body, or the face alone. Cold water does not appear to have the effect of causing retrocession of the pustules, but it is thought to increase the congestion of the mucous membranes. My brother, Mr. George Wilson, has pursued the practice of sponging the surface for several years, and he assures me with the best success.

The belladonna treatment recommended for scarlatina is also applicable to small-pox. I have seen this remedy exhibited with the greatest benefit, both as a prophylactic and a curative measure.

Vaccination has been observed to possess the power of modifying va.

\* See Lancet, vol. ii., 1841-2, page 441.

riola, even when an attack of the latter has already commenced. Some remarkable cases are on record in which the good effect of this remedy was apparent. It recommends itself, moreover, by its extreme simplicity of application. Eichhorn, who was the projector of this plan, inserted the vaccine lymph by forty or fifty incisions, immediately that the symptoms of small-pox became apparent.

105. As regards *local* treatment, various plans have been adopted and recommended for the purpose of bringing the pustules to a favourable issue, and of preventing the deep ulcerations, with their consequent cicatrices, which are apt to ensue when the eruption is left to itself. We will now proceed to consider these plans, but, before doing so, it may be necessary to premise that every precaution should be taken to prevent the rupture and laceration of the pustules by the nails of the patient, in efforts made to relieve the itching by which the desiccating process is accompanied. The face should be frequently and well bathed with an infusion of poppies, or mallow, or with weak barley water, particularly in the region of the eyes, the nose, and the lips. The secretions from these parts should be removed as much as possible by means of a sponge wetted with these fluids, and whenever an excoriation is formed, it should be carefully dusted with starch powder.

Great benefit is derived from pursuing the practice of the Arabian physicians—namely, of opening the matured pustules, gently pressing from them their contents, and removing the latter by means of a sponge wetted with plain water, or with an infusion of poppies. This plan accelerates very materially the healing of the ulcerations, and prevents the formation of deep and disfiguring cicatrices.

106. Various ectrotic\* methods of arresting the development of the eruption of the variola, and, consequently, of preventing the occurrence of cicatrices, have, from time to time, been suggested and employed. Nitrate of silver has been used for this purpose by MM. Serres, Bretonneau, and Velpeau. If the apex of each conical vesicle be removed, and the pointed extremity of a stick of nitrate of silver be inserted into the opened vesicle, its farther progress will be instantly arrested. But this proceeding is necessarily attended with much pain, and requires a considerable period of time for its performance. To obviate these objections, it has been proposed to paint the entire surface with a solution of nitrate of silver, containing fifteen or twenty grains to the ounce. The application of this fluid to a surface of any extent has been found to be dangerous, in consequence of giving rise to a considerable increase of the febrile symptoms, while the anticipated effect of checking the progress of the eruption has only partly succeeded. The solution used in this manner forms a mask to the part upon which it is applied, beneath which the pustules advance unseen and unaltered. The nitrate of silver as an ectrotic remedy is only available, therefore, for the eruption situated upon the face and neck, and to this it must be used quite at the outbreak of the disease—namely, on the first or second day, otherwise it will be liable to failure. In summing briefly the objections to the employment of nitrate of silver, they may be stated as follows:—firstly, it creates pain; secondly, it requires more time for its application than the practitioner can devote; and thirdly, it augments the febrility and nervous exhaustion of the patient.

\* *Εκτιτρωσκειν*, to render abortive.

107. Another ectrotic remedy has been warmly eulogized by Dr. Midivaine,\* of Ghent. It consists in the application of sulphur ointment by means of slight friction to the entire surface of the skin. This ointment should be composed of two drachms of sulphur to an ounce of lard, and used three times a-day, at as early a stage as possible of the disease. The effects of the remedy, according to Dr. Midivaine, are, contraction and hardening of the papulæ, diminution of tumefaction of the skin, and subsidence of the gastro-intestinal irritation. The appetite of the patients quickly returns, and they are speedily restored to health.

108. A more important ectrotic remedy than either of the preceding, is one which has lately been made the subject of an essay,† read before the Parisian Medical Society, by their president, Dr. Olliffe. This remedy is mercury, applied to the external surface of the body, and is one which is deserving our most attentive consideration. Mercury administered internally has long been known to possess remarkable powers in modifying the influence of variola upon the system, but it was left to modern times to prove that this agent has also the property of neutralizing the variolous virus when applied externally. I pass over the well-known and unmeaning experiment of Von Wenzel—namely, the trituration of the variolous matter with calomel, and the subsequent marvel that the virus should have lost its inoculating power, to the more rational experiments of Serres, afterwards so successfully pursued by M. Briquet. The mercury was employed by these gentlemen in the form of a plaster, the *emplastrum vigo cum mercurio*, of which the formula in the French pharmacopœia is as follows:—

Rx	Mercury . . . . .	95 parts.
	Balsam of storax . . . . .	48
	Common plaster . . . . .	312
	Wax, resin, turpentine, ana . . . . .	16
	Gum ammoniac, bedellium, olibanum, and myrrh, ana . . . . .	5
	Saffron . . . . .	3
	Spirit of lavender . . . . .	2
M.		

In the first experiment, a strip of this plaster was placed on the arm of a patient attacked with variola, while a similar strip of diachylon plaster was applied to the opposite arm. Under the mercurial plaster the development of the eruption was arrested, under the other plaster no modification took place. In a second case, the face of the patient was “covered with the plaster, a part of which he tore off during the night which followed its application. The denuded surface was the seat of suppurating pustules, whilst on that portion of the visage which continued subjacent to the plaster, their abortion was effected.” In a third case—a man affected with “violent confluent variola, the pimples were small, scarcely raised above the level of the epidermis, and surrounded with a brilliant red areola. The vigo plaster was applied, and allowed to remain seven days; on its removal, it was found that no suppuration had been established, with the exception of four pustules, and these were situated near the mouth, and had not been

\* Bulletin de la Soc. Med. de Gand, 1840.

† Lancet, vol. i., 1840–41, p. 674.

in contact with the plaster. This patient was radically and rapidly cured, and no scars were manifested."

The mode of application of the mercurial ectrotic is thus stated by Dr. Olliffe:—"The whole face should be covered with a mask of the vigo plaster, merely leaving a space for the mouth, nostrils and eyes. A little mercurial ointment is applied to the eyelids." "The plaster is allowed to remain for three days in simple small-pox, and for four in confluent." In the event of any objection to the plaster arising, mercurial ointment may be substituted with equal benefit. M. Serres entertained the belief that the mercurial treatment would effect the miscarriage of the eruption, at whatever period it was used; but M. Briquet has satisfactorily shown that the eruption remains unmodified, if it have reached its pustular stage. The proper period for the application of the remedy is the second day, or, at the latest, the third day of the eruption. Its effect is to produce immediate resolution of the eruption, or to arrest it at the papular or vesicular stage; it never becomes purulent, and the skin between the pustules is never inflamed and swollen. But, however powerless as a perfect ectrotic the mercurial application may be when used in the pustular stage, it would seem, from the evidence of Dr. Olliffe, that the local inflammation is much modified and ameliorated. According to M. Briquet, "the mercury acts as an antiphlogistic, or resolute, in destroying or suppressing the local inflammatory process; or it exercises a specific action on the cause, whatever it be, which produces the variolous pustule." From the researches of M. Briquet on other inflammations of the skin, the latter of these propositions would appear to be the most correct.

It is interesting to learn, that in the progress of his experiments, M. Briquet ascertained that mercury possessed precisely the same influence over vaccinia as over variola—an additional fact in evidence of the identity of these diseases.

109. An impression subsisted among the ancient physicians, that the light of the apartment in which small-pox patients are kept, should be either modified or excluded. In pursuance of this view, the rooms were hung with scarlet cloth, and the windows carefully blocked up. So recently as 1832, Dr. Picton,\* of New Orleans, asserts, that in his practice no instance of pitting after small-pox occurred when the light was shut out. M. Serres placed a glass capsule over a small-pox pustule, and observed the effects produced by excluding the air and light. He found, that in proportion to the exclusion of both was the development of the pustule checked, and that when they were completely shut out, the pustule became shrivelled and quickly dried up. Moreover, M. Serres remarks, that he never reaped such successful results, in the cure of small-pox, as he did at La Pitié, during one year that the patients were placed in a kind of cellar, which was very dark, and ill-ventilated. The same principle has been more recently acted on by M. Legrand, who proposed to the Academy of Medicine, in 1839, the plan of covering the surface of the body with gold leaf. After the experiments of M. Fourcault (§ 39,) this practice would appear somewhat hazardous.

\* American Journal of Medical Science.

## VARICELLA.

Syn. *Modified Small-pox. Varioloid. Spurious Small-pox. Variolæ pusillæ; verrucosæ; crystallinæ. Variola lymphatica. Verole volante.* Fran.—*Unachten Kindpocken,* Germ.

110. During the prevalence of an epidemic of small-pox, the variolous contagion develops itself in a variety of forms, some of which are remarkable for their severity, and others for their exceeding mildness. A medium state between these two extremes has been denominated benignant small-pox. Upon closer investigation, it is perceived that benignant small-pox, and all the most serious varieties of this disease, are characterized by the appearance of an eruption pursuing a given course within a given space of time, and presenting a regular succession of alterations. On the other hand, it is likewise perceived that there are several forms of eruption resulting from the same variolous contagion, which are deficient in the characters needful for their consideration with the preceding group. They are much milder in their local, and, for the most part, in their constitutional nature, and their course is limited to a shorter period. It is to this second group that the term varicella (modified small-pox) properly applies, and under this head I shall proceed to describe the different varieties which small-pox, in its modified form is capable of assuming.

111. Variola, it has just been observed, occasionally appears in its varicellar form without any obvious cause, the modification probably depending upon some present state of constitution of the individual. Thus, it not unfrequently happens, that a single member of a family may be affected by varicella, while several others of the same family have true variola. But the individual so affected with varicella in this instance, may, during a future epidemic, be attacked with genuine small-pox. At other times, and these are the most frequent, the eruption is modified by that state of constitution which succeeds to vaccination, inoculation, or a sporadic attack of small-pox. Hence, after the preparation of the system by either of these affections, the contagion of variola gives rise generally to varicella, and but rarely to the genuine small-pox. If other proof were needed of the close relation subsisting between variola and varicella, it would be found in the fact, that the latter is infectious and contagious, and is capable of communicating true variola to a sound person.

112. Varicella, in this point of view, may be regarded as an arrest of development of variola, and the forms which it is capable of assuming may consequently be deduced from the observation of the natural course of small-pox. Thus, if the variolous disorder were to expend itself in its first stages, we should have a varicella resembling the papular eruption of small-pox, in other words, a *papular varicella*; if the variolous disorder progress beyond this stage, we shall then have a *vesicular varicella*; and if it proceed still farther, a *pustular varicella*. The latter, however, is capable of presenting some modifications; in one of these, the contents of the conical vesicles are simply transformed into a purulent fluid, without any alteration of their form; this constitutes the *conical pustular varicella*: in another, the purulent fluid distends the vesicle to so great an extent, that it presents a globular figure; this is the *globular pustular vari-*



*cella*: while in a third, the pustules assume the characteristic features of those of variola, being flattened and umbilicated: this, which is the most advanced grade of varicella, is the *umbilicated pustular varicella*. Moreover, it has been remarked, that in varicella, as in variola, the constitutional affection may be present without the eruption, constituting *varicella sine varicellis*.

It must not be supposed, however, that any one of these forms occurs singly; the distinction is intended merely to apply to the general predominance of one or the other, for each variety is more or less commingled with the rest, and, in some instances, all the forms appear upon the same individual in nearly equal proportion. In describing the varieties of varicella, it will be convenient to reverse the order of relation here laid down; thus, in a tabular plan, these varieties are—

*Pustular varicella.*

Umbilicated pustular varicella.

Globular pustular varicella.

Conical pustular varicella.

*Vesicular varicella.*

*Papular varicella.*

*Varicella sine varicellis.*

113. Varicella makes its invasion with symptoms resembling those of small-pox, but much milder in degree. In some instances, they scarcely amount to more than mere indisposition, while, on the other hand, they may be severe. The chief of these symptoms are, feverishness, uneasiness at the epigastrium, nausea, vomiting, pains in the loins and in the head, with accelerated pulse. At the end of a few days, usually three or four, the eruption makes its appearance in the form of red points and spots, which resemble those of small-pox. The constitutional symptoms are relieved by the eruption, and gradually decline. The eruption, however, proceeds on its course, advancing, if it be of the pustular kind, quickly through the papular and vesicular, to the pustular stage, arriving at its height by the fourth or fifth day, and then declining without any increase of the constitutional symptoms, and without the secondary or suppurative fever which occurs in small-pox. The pustules speedily dry up, and form thin brownish scabs, which fall in another few days, and leave but a slight and transient pitting of the skin, with a few discoloured red or purplish spots. When, however, the pustules are broken and lacerated by scratching, cicatrices of small size occasionally result. Varicella, in its progress, is accompanied by a broad and patchy areola of a pale red colour, which contracts its boundaries as the pustule advances, and ultimately forms a narrow, brownish circle around its circumference.

UMBILICATED PUSTULAR VARICELLA.

Syn. *Varioloid. Modified small pox. Varicella cellulosa. Cross.*

114. The precursory symptoms of this variety of modified small-pox, usually continue for three or four days, and are succeeded by an eruption of red spots, which soon become hard and papular in the centre. On the

second day of eruption, the papulæ are conical in form, and vesicular at their points. On the third and fourth days, the vesicles increase in size, and become flattened and umbilicated, while their contents lose their transparency, and assume an opaque and whitish hue. During the fifth and sixth days, the suppurative stage is established, but without secondary fever, and the pustules on the face desiccate and form scabs. On the seventh day, desiccation occurs on other parts of the body, and by the eighth, the whole of the pustules are covered with yellowish brown scabs, which, in a few days more, are detached, and fall off. The process of desiccation commences at the centre of the pustule, and proceeds towards the periphery, and the scabs at their fall leave a slight pitting, and red or livid discolouration of the skin, which lasts for a few weeks, but no cicatrices or permanent impressions remain behind.

Umbilicated pustular varicella is generally commingled with the conical and globular forms of the eruption, and also with the papular and vesicular kinds. It sometimes appears in successive eruptions, and in this case it is not uncommon to find on the skin, at the same time, papulæ, conical vesicles, with their thin scabs; and conical, globular, and umbilicated pustules, with their thicker and browner scabs.

#### VARICELLA GLOBULARIS.

Syn. *Globular varioloid.* *Hives.*

115. The globular variety of varicella is characterized by the form and large size of the pustules, which surpass that of all the other varicellæ. At its height, the pustule is larger than its base, which it consequently overhangs, and the latter is not quite circular in outline. The precursory symptoms of this variety are usually severe. They are succeeded by the eruption of a number of red spots, having in their centre a small, prominent, and globular papula, which speedily increases in size, and becomes vesicular at its extremity. On the second or third day of the eruption, the contents of the vesicles assume an opalescent and pearl-white colour, particularly towards the centre. On the fourth and fifth days, the vesicles go on increasing in size, the contained fluid becomes purulent, and the areola by which their bases are surrounded, of a bright red colour. On the sixth, the vesicles attain their greatest bulk, their contents are more purulent, and the areola still farther increases in redness. On the seventh and eighth days they begin to diminish, their parietes are flaccid and wrinkled, and desiccation is established. On the ninth day, the desiccation of the pustules is completed on the greater part of the body, and they are converted into brownish lamellated scabs, which are loosened and thrown off during the two or three succeeding days, leaving behind them some slight impressions, and a temporary congestion of the dermis.

Globular varicella is not unfrequently mingled with the pustules of the umbilicated and conical varieties. The ordinary duration of this eruption is ten or twelve days, but if the pustules be developed successively, it may be continued for a few days longer.

## VARICELLA CONIFORMIS.

Syn. *Conical varioloid. Swine-pox.*

116. The conical variety of varicella is recognised by the form of its pustules; they are developed, like the preceding, after two or three days of constitutional symptoms, upon red spots, which soon become papulated in the centre, and surmounted by whitish and opaque elevations of the epidermis. During the third day, the size of the vesicle is increased, its form has become more distinctly conical, and its base more highly inflamed. During the fourth and fifth day, the vesicles still farther augment in bulk, their contents become purulent, and the areola which surrounds them, more inflamed. On the sixth day, they are flaccid and wrinkled, and begin to desiccate; and on the seventh are covered by prominent scabs of a yellowish, or yellowish brown colour, which fall in the course of a few days. The pustules of conical varicella are sometimes very numerous, and collected into closely set clusters; they are usually attended by considerable pruritus, and are not unfrequently intermingled with the pustules of the umbilicated variety. The ordinary duration of the eruption of varicella coniformis is eight or ten days, but when it occurs in successive attacks, it may be continued for a few days longer.

When the vesicles are torn and broken in attempts made by the patient to relieve the itching, the spots become greatly inflamed, they ulcerate, and secrete a thick pus, which concretes into scabs of greater thickness than those of the natural pustules. These scabs are of a dark brown, or blackish colour, they remain longer than the thinner scabs of the pustules, and leave cicatrices at their fall. Such accidents occur most frequently upon the face.

## VARICELLA VESICULARIS.

Syn. *Varicella lentiformis. Willan. Varicella lymphatica. Chicken-pox.*

117. Vesicular varicella, or chicken-pox, is preceded by febrile symptoms, which are very mild in the discreet form of the eruption, but severe in the confluent kind. The eruption makes its appearance in the form of small red and slightly raised spots, of an oval or irregular form. On the second day, a minute transparent vesicle is developed in the centre of each of these spots. On the third day, the vesicles go on progressively increasing; they are flattened on their summits, and the contained fluid, transparent and limpid at first, becomes yellowish, opaque, and lactescent. On the fourth day, they begin to collapse and shrivel, and on the fifth and sixth, to desiccate into thin, brownish, and lamellated scabs, which fall on the eighth or ninth day, leaving behind them a slight congestion of the dermis, but no depression. While this course is being pursued by the vesicles which first appear, others are successively developed, so that the eruption may be seen at once in all its stages, and may be prolonged to ten or twelve days, and sometimes to two or three weeks. The eruption of chicken-pox at first appears on the back, and thence extends to the rest of the body; it is attended with much itching, and many of the vesicles retain their papular or aborted form; the perfected vesicles are surrounded by inflamed areola of small extent.

## VARICELLA PAPULARIS.

Syn. *Varicella verrucosa*. *Horn-pox*. *Variolæ verinosæ; verrucosæ*.

118. This is the most simple, and, at the same time, the least severe form of varicella. After the invasion of febrile symptoms of the mildest kind, an eruption of red spots, followed by papulæ, is developed on the surface of the skin. The papulæ are various in point of size, and hard to the touch, but they offer no disposition to proceed to the evolution of vesicles and pustules. The redness fades in the course of a few days, and the papulæ are gradually lost. The eruption of papular varicella rarely exists alone, it is usually commingled with one or other of the more advanced varieties.

## VARICELLA SINE VARICELLIS.

119. Varicellar fever occurs chiefly in those who have been inoculated or vaccinated, or have previously suffered from variola. It is occasionally, though rarely, observed during the prevalence of epidemic variola.

120. *Diagnosis*.—Varicella differs from small-pox in several essential particulars—namely, in the lesser degree of severity of the constitutional symptoms; in the shortness of course of the eruption; in the absence of secondary fever; in the appearance of the eruption at its height; in the minor degree of inflammation surrounding the pustules; in the thinness of its scabs: and in the freedom from permanent impressions and cicatrices.

At the earliest moment of eruption, it is impossible to establish a distinction, since both affections are developed in the form of red spots with central stigmata.

121. *Causes*.—Varicella originates in the variolous contagion, and frequently precedes or follows an epidemic of small-pox. This observation would lead to the inference that, at the commencement, the variolous contagion had not yet gathered sufficient power to excite true small-pox in any but the most susceptible, and that, at the conclusion of the epidemic, the contagion had lost the strength necessary to awaken any but a modified affection. The inference, in truth, is correct, for when in a state of dilution, the variolous contagion is capable of producing only varicella in persons of average susceptibility. In those who possess the susceptibility of infection in a high degree, true variola may be excited; and for the same reason, the contagion of varicella is apt to communicate variola to individuals so constituted. Another condition conducing to the development of varicella is deficient susceptibility. In some instances, this deficiency is the result of constitutional idiosyncrasy; in others, and they are the most usual, it is the consequence of a modification of the system, produced by vaccination, by inoculation, or by a previous attack of variola.

Varicella is infectious and contagious, and transmissible by inoculation. Its contagion may excite either varicella or true small-pox. The result of inoculation is similar; in one instance, varicella may be developed; in another, true variola. The variola communicated by varicella is for the most part mild, but the severity of the affection would appear to depend upon the constitution of the individual, rather than upon the nature of the contagion. Varicella may occur repeatedly in the same person, and it pos-

sesses less preservative power against the contagion of small-pox than vaccination.

Vesicular varicella, or chicken-pox, is stated to have occurred as an epidemic, and, independently of variola, this statement is open to objections. It is less easily transmissible than the other forms. When inoculated, varicella of the same kind is sometimes developed, at other times the pustular form, and again, true small-pox.

122. *Prognosis.*—Varicella is generally a mild disease, and one of favourable termination. Sometimes, however, it issues fatally, and during certain variolous epidemics, is remarkable for the severity of its concomitant symptoms, or for a fatal tendency. The umbilicated pustular varicella is the most serious of its varieties.

123. *Treatment.*—The treatment of varicella is to be conducted on the same principles with that of variola. If there be congestions, they must be combated as they arise; and if the eruption should recede, it must be re-excited by stimulation of the skin. In ordinary cases, the simplest antiphlogistic management is all that is needed.

## VARIOLA VACCINA.

Syn. *Variolæ vaccinæ. Vaccinia. Cow-pox. Cow small-pox.*

124. Variola vaccina, the small-pox of cattle, is a contagious inflammation of the skin, prevalent among cattle, and occasionally communicated to man. It is characterized by the development, upon inflamed bases, of multilocular and umbilicated vesicles, which pass by degrees into the pustular form, and terminate in hard, dark-brown scabs, the latter leaving behind them deep and permanent cicatrices. Variola vaccina is accompanied by constitutional symptoms, which are mild during the first of the vesicle, but become more severe, and constitute a secondary fever when the local inflammation arrives at its height, and the suppurative process is about to be established.

125. The existence of a disease identical with small-pox among the inferior animals, is a theorem that might, à priori, be predicted. It is perfectly consistent with our knowledge of the physiological laws, and comparative structure of man and animals. It is a position well established with regard to some other diseases, and there can be no doubt that still farther analogies in relation to pathology will be unveiled by future research in that most interesting branch of medical science. The announcement of the discovery of a disease analogous to small-pox, in the cow, in the horse, or in any other animal, at the present day, would occasion little surprise; it is admitted, indeed, as a principle, in the first rudiments of our physiological education; but when this declaration was made in 1796 by the immortal Jenner, it was a bold soar of genius, and too enlightened for the philosophy of his age. It is now, however, well established, that small-pox has for centuries been prevalent among animals in all parts of the world; that it has made its invasion as an epizootic, and, for the most part, in connexion with a similar pestilence among men. Jenner was acquainted with the fact of the occurrence of a disease in the horse, which was communicable to the cow, and capable of engendering in the latter animal an eruption that could not be distin-

guished from the true vaccinia. This disorder in the horse was, unquestionably, the equine small-pox; it was, however, from the circumstance of its development in a situation where, from the thinness of the skin, eruptive disease in a mild form would most naturally occur—namely, in the hocks, confounded with a more common disease of this region, the *grease*. By a wrong inference drawn from this observation—an inference perfectly natural and perfectly excusable in the state of science at that period, an inference which its distinguished author subsequently relinquished—namely, that the variolæ vaccinæ had their origin in the horse,—Jenner created an argument which, for many years, was industriously employed as an objection to the philosophy of his views; with how little injury to the splendour of his discovery, we who live can tell.

126. In the excellent report\* of the Vaccination Section of the Provincial Medical Association, the committee remark that the ravages of this epizootic are not confined to one region of the earth; that such as it has been seen in the valleys of England, it has likewise been observed upon the mountains of the Andes, on the elevated ranges of the Himalayas, in the plains of Lombardy, in the green pastures of Holland, and on the sunny slopes of Asia. It is interesting, moreover, to learn, that in Bengal the natives apply to this disease the self-same appellation that they give to the small-pox in the human subject—namely, *bussunt*, *mhata*, or *gotee*. It would be so much out of place, in a work dedicated to practical purposes, to go into the numerous inquiries and arguments that have been raised upon the question of the history and analogies of cow-pox, that I shall content myself with stating the facts which I conceive to be established relative to this disease, and the principal observations by which those facts are supported. The facts to which I allude are—

1. The prevalence at the same period of the cow-pox among cattle and the small-pox among men.

2. The transmission by *contagion* of the small-pox to cattle, and the consequent development of cow-pox in those animals.

3. The transmission by *inoculation* of the small-pox to cattle, and the consequent development of cow-pox in those animals.

4. The transmission by *contagion* of the cow-pox to man, and the consequent development of a pustule similar in character to the vaccine pock of the cow.

5. The transmission by *inoculation* of the cow-pox to man, and the consequent development of a pustule similar in character to the vaccine pock of the cow.

6. The transmission by *inoculation* of the cow-pox to man, and the consequent development of an eruption similar to, if not identical with small-pox.

127. The first of these theorems appeals to history for its proof, and is additionally substantiated by the facts which tend to support the second proposition. Its accuracy has been verified also by several practitioners, during the recent epidemic of small-pox in England. Mr. Gibson,† in a sketch of the province of Guzerat, states that variola carries off annually many persons, and “the same disorder is at times very fatal among the cattle.” Mr. Macpherson, writing from Murshidabad, in 1836, observes that the disease

\* Transactions of the Provincial Medical Association. Vol. viii. 1840, p. i.

† Transactions of the Medical and Physical Society of Bombay. Vol. i.

among the cows has not occurred in that province for two years; that during the same interval very few cases of variola have been known, and from these circumstances he infers "that the unknown causes which favour the disease in the human subject have the same tendency in the cattle; in fact, that variola, and mhata, or gotee, owe their origin to the same cause." Mr. Lamb, stationed at Dacca, remarks, in 1836, that during the prevalence of variola, the cow-pox "appeared in one muhalla, and carried off fifteen or twenty cows."

128. The transmission by contagion of the small-pox to cattle, which rests upon the assertion of numerous observers, is strikingly illustrated by Mr. Ceeley,\* in the following narrative:—"On Friday, the twenty-second of October, 1840, my friend Mr. Knight informed me by letter, that he had on that day seen on the hand of a patient, Mr. Pollard, aged fifty-six, who had never had small-pox or vaccine, two broken vaccine vesicles, which the patient said he had caught while milking his own cows, some of which he knew were affected with the same disease, and were then very difficult to milk." Mr. Pollard at the same time expressed his conviction "that his cows had been infected from human small-pox effluvia, to which he considered they had been exposed." It appears that the small-pox had been prevalent in the village of Oakley, and the last three persons attacked were two women and one child. "The two cottages in which these three patients resided during their illness were situated on each side of, and closely connected with, a long narrow meadow, or close, comprising scarcely two acres. The first-named patient, though thickly covered with pustules, was not confined to her bed after the full development of the eruption, but frequently crossed the meadow to visit the other patients, the woman and child, the former being in great danger with the confluent and malignant form of the disease. She died on Monday, the seventh of September, and, according to custom, was buried the same evening. The intercourse between the cottages across the close was, of course, continued after this event. On the following day, the wearing apparel of the deceased, the bed-clothes, bedding, &c., of both patients, were exposed for purification on the hedges bounding the close, the chaff of the child's bed was thrown into the ditch, and the flock of the deceased woman's bed was strewed about on the grass within the close, where it was exposed and turned every night, and for several hours during the day, until the thirteenth of September—eleven days. On that day, the above-mentioned eight milch cows, and two sturks, were turned into this meadow to graze. They entered it every morning for this purpose, and were driven from it every afternoon to be transferred to a distant meadow to be watered and milked, where they remained through the night. Whenever the cows quitted the meadow in question, in the afternoon, the infected articles above-mentioned were again exposed on the hedges, and the flock of the bed spread out on the grass, and repeatedly turned, where it remained till the morning, when the cows were readmitted. It appears, however, that the removal of the infected articles was not always accomplished so punctually as had been enjoined, for both the proprietor and the milkers affirm, that on one occasion, at least, they observed the bed-flock on the grass, and the cows amidst it, and licking it up. The proprietor positively declares, and the milkers corroborate his statement, "that the

\* Transactions of the Provincial Medical Association. Vol. x. 1842, p. 211.

animals were in perfect health on their first entering this close, but within twelve or fourteen days of that event, five of the milch cows appeared to have heat and tenderness of the teats, upon which, embedded in the skin, were distinctly felt small hard pimples, which daily increased in magnitude and tenderness, and in a week or ten days rose into blisters, and quickly ran into brown and blackish scabs. At this period, when the teats were thus blistered and swollen, and very tender, the constitutional symptoms were first observed—viz., sudden “sinking,” or loss of milk, dribbling of saliva from the mouth, and frequent inflation and retraction of the cheeks, starring of the coat, “tucking up of the limbs,” and sticking up” of the back, and rapid loss of flesh: the process of milking was now very difficult, disagreeable, and even dangerous; and on the fourteenth of October, the middle of the third week, the detachment of the crusts and loose cuticle, and the abundant discharge of pus on attempting to milk, compelled the milkers to desist, for the purpose of washing their hands. soon after this period, the cows became by degrees more and more tranquil, as the tenderness and tumefaction of the teats subsided, and, finally, milking was performed with comparative facility, and at the period of our visit, scarcely any trouble arose in the performance of the operation, though here and there a teat seemed still tender.” In his remarks upon this case, Mr. Ceeley observes, “Another circumstance, too, requires to be particularly noticed; it is, the fact of the occurrence of the vaccine disease on a young sturk, which, of course, could not have been induced by those casualties which commonly propagate it among milch cows, but simply by the cause which originated the disease in the other five animals, whatever that may have been. The sturk is not considered liable to the vaccine, at least so it is inferred in this neighbourhood, because no one has ever seen the animal affected by it.”

It is scarcely needful to add more evidence to that contained in the preceding paragraph, in proof of the communicability of the contagion of small-pox from man to cattle, but I cannot forbear quoting one or two farther illustrations; the first is contained in the following brief extract from a letter addressed by Dr. Waterhouse, of Cambridge, Massachusetts, to the celebrated Jenner:—“At one of our periodical inoculations,” says the writer, “which occur in New England once in eight or nine years, several people drove their cows to a hospital near a populous village, in order that their families might have the daily benefit of their milk. These cows were milked by persons in all stages of small-pox; the consequence was, the cows had an eruptive disorder on their teats and udders so like the small-pox pustule, that every one in the hospital, as well as the physician who told me, declared the cows had the small-pox.”

Dr. Sonderland, of Bremen, communicated the small-pox contagion to cows, by covering them with sheets between which persons fatally affected with small-pox had lain. These experiments were successful in a few cases, after many trials.

129. The third position—namely, the transmission of small-pox to cattle by means of inoculation, and the consequent development of cow-pox in those animals—is also established on abundant evidence, for the chief of which we are again indebted to the zealous perseverance of Mr. Ceeley, of Aylesbury. It is stated by Dr. Mac Michael, in an essay read before the College of Physicians, in 1828, that “vaccine matter having failed in Egypt, medical gentlemen were led to institute certain experi-



ments, by which it has been discovered that, by inoculating the cow with small-pox from the human body, fine active vaccine virus is produced." M. Viborg, of Berlin, is reported to have inoculated cattle, and several other classes of domestic animals, with success.

Mr. Ceeley instituted a series of experiments on the inoculation of the cow with variolous lymph in the month of February, 1839. In his first subject, no effect was observed for nine days, at the end of which time, one out of seven punctures inoculated with virus of the seventh or eighth day, presented the appearance of a tubercle. On the tenth day, this tubercle had all the characters of the vaccine vesicle; by the fifteenth day the vesicle reached its acmé, and was "truly splendid." Decline commenced on the sixteenth day, the crust was well formed on the seventeenth, but was rubbed off prematurely. In this experiment the vesicle was retarded five days; the usual period of maximum development of the variolo-vaccine pock being the tenth day. In a second experiment, the first inoculation failed. After re-inoculation, four out of the seven punctures looked purplish or livid on the fifth day, and were vesicular, with incipient central crusts on the sixth. By the tenth day they had attained their acmé. On the eleventh, decline had commenced, and progressed gradually, till the twenty-sixth day, when the crusts fell, leaving behind them smooth rose-coloured pits.

130. The fourth proposition is one so well established, as to require no especial remark. The nature of the affection resulting from this contagion, is considered in the section entitled "Casual variola vaccina in man." The fifth proposition is equally satisfactory in its proof; the effects of "primary lymph" from the variolæ vaccinae will be stated at a future page.

131. In support of the fact announced in the sixth proposition, it has been observed, that when the epizootic disease presents characters of great severity, the symptoms produced on man by inoculation from such cases were also severe, and often serious, contrasting strongly with the mild affection engendered by the virus from the ordinary discreet form of cow-pox. Mr. Macpherson, in experiments with this virus in Bengal, in 1837, found that an eruption was developed, which was identical with small-pox. Mr. Wood, of Gowalpara, in 1839, met with similar cases, of so great severity, that he was led to contemplate the substitution of inoculation with small-pox virus, as a safer expedient. At Silhet, Mr. Brown removed some dark-coloured scabs from a cow labouring under variolous disease, and triturating them in a mortar, he inoculated several children with the pulp. These cases exhibited nothing remarkable, excepting a somewhat greater degree of constitutional disturbance on the eighth day than usual. After two months, children inoculated from this stock were attacked on the eighth day with severe fever, "followed by an eruption, which spread over the whole body, and, in one case, proved fatal." The eruption so produced bore all the characters of true small-pox. Thus it would appear, that as the small-pox virus, when introduced into the system of the cow, is so modified by the vital laws which regulate the functions of the animal as to produce an eruption of cow-pox; so, on the other hand, the virus of the cow, under like circumstances, is modified by the constitutional phenomena of the human organism, and is made to assume the characters of small-pox.

## VARIOLA VACCINA IN THE COW.

132. Variola vaccina in the cow is by no means a common affection, and when it occurs, is usually met with in milch-cows, a circumstance attributable to the transmission of the contagion by the hands of the milkers. Occasionally the disorder appears as an epizootic, but more frequently in the sporadic form. In rare instances it would seem that the source of this contagion has been a variolous eruption developed in the horse, and mistaken for a more common vesicular disease in that animal, the *grease*. The vaccine disorder is modified by a variety of conditions, such as the temperament of the animal, the tone of its tissues, its state of health, the thickness of its skin, and its colour. A slight difference is also observed in the disease, in relation to its origin in a sporadic form, or as the result of contagion communicated by the hands of milkers; the former of these varieties Mr. Ceeley terms *natural*, and the latter, *casual*.

133. *Natural variola vaccina* makes its invasion with heat and tenderness of the teats and udder, unaccompanied by constitutional symptoms. The inflamed surface is irregular and pimply to the touch, and papulæ of a red colour, hard, and as large as a pea, are soon developed. In three or four days from invasion, the papulæ have attained the size of a horse-bean; they are tender and painful, and vesicles are gradually raised upon their summits. The vesicles, increasing in size, become acuminate, ovoid, or globular, and are distended with an amber-tinted and viscid fluid. When ruptured, they present depressed centres, with an elevated and indurated margin, and when the epidermis is rubbed off, the surface of the corium is of a vivid red colour, with a small central slough. When uninjured, or merely ruptured, without the removal of the epidermis, the vesicles desiccate into thick, dark-brown crusts, which commence in the centre, and proceed towards the circumference, appearing at first enchased in the marginal elevation, and subsequently extending completely over it. The surface from which the epidermis is removed becomes covered by thin, brownish scabs, which are termed *secondary*.

134. *Casual variola vaccina* appears as an eruption on the fifth or sixth day after contagion, in the form of small tender papulæ, which are developed upon the teats and neighbouring surface of the udder. By the sixth and seventh days, the papulæ have attained the size of a pea; they are reddish in colour, and circular or oval in form. On the summit they become gradually depressed, assume a yellowish-white and pearly hue, and have a small central dot or linear impression. On the eighth or ninth day, the central concavity increases in depth, while the margin becomes more elevated, tense, and shining, more pearly or silvery in its aspect, and the central depression acquires a bluish or slaty tint. At this period, the pock is more than half an inch in diameter, and is surrounded by a narrow areola of a pale rose, or light damask hue. Between the tenth and the eleventh day, the eruption reaches its acmé; the elevations are now upwards of three-fourths of an inch in diameter, the areola has increased to four or five lines in breadth, and the integument beneath is tense and indurated. The central depressions have augmented in depth, their bluish, slaty colour has acquired greater intensity, and the epidermis which invests them becomes distended with an abundance of lymph, and

rises into a globular or conical vesicle. Many of these vesicles are now ruptured, others remain whole, but in either case, they shrivel and desiccate into brownish or black crusts, which are first observed in the centre, and increase towards the circumference, until they reach and overlap the marginal border of the pock. The induration and enlargement of the latter diminishes, and the crusts are thrown off spontaneously between the twentieth and twenty-third day, leaving a slightly depressed and smooth cicatrix of a pale rose or whitish colour. Such is the usual course of the cow-pock, but it necessarily presents many diversities of appearance, dependent upon aggravation of symptoms, &c. Thus, instead of forming crusts in the manner described, ulcerated and sloughing surfaces are sometimes produced, which remain for weeks in an irritable state. Moreover, casual vaccine variola always presents the eruption in every stage of its progress at the same moment, the elevations with their central depressions are intermingled with incipient papulæ, and while the crusts are being perfected in some, the vesicles are yielding in others, to the distention of their lymph. This succession in the eruption depends upon the diffusion of the virus by the rupture of the vesicles, either in consequence of the movements of the animal, or by the milker, and the consequent re-vaccination of the neighbouring unaffected skin. Mr. Ceeley has observed as many as sixty pocks upon the udder and teats of a single cow.

## VARIOLA VACCINA IN MAN.

135. Variola vaccina may be communicated to man, either accidentally, or by voluntary inoculation. In the former case, the contagion is received directly from the animal, usually from the cow, but sometimes, as in the case of variola equina, from the horse. It had long been observed, that persons who had suffered from this disease were preserved against the influence of small-pox, and thence originated the practice, introduced by Jenner, of transmitting the contagion artificially to man, by means of inoculation.

136. It is a principle, well established in pathological science, that the animal system, once subjected to the influence of any disease originating in specific contagion, is protected to a greater or less extent, against subsequent incursions of that disorder. Thus we observe that the modification which the system undergoes in the reception of rubeola and scarlatina, is protective of the individual against that contagion for the rest of life. The same circumstance is remarked with regard to small-pox, and other contagious fevers. When this fact was contemplated by the medical philosopher, in association with the fearful ravages of that dreadful pestilence and scourge upon the human race, small-pox, such as it existed in former ages, the expedient suggested itself to his mind, that if the disease could be anticipated, if the disorder, in a mild form, could be communicated to man, life would be spared, and the system equally defended against the subsequent contagion of a more virulent and fatal disease. This design, happy in thought, and happy in application, gave birth to the practice of inoculation for small-pox. Inoculation for small-pox, however, was not free from objection; the disease thus engendered was always serious, often fatal, and frequently it became the source of a malignant contagion. In this state of

demi-subjugation, small-pox was found by Jenner, when the well known fact of the protective influence of cow-pox first engaged his attention, and aroused in his comprehensive mind the philanthropic thought that spread happiness and security where gloomy anticipations and uncertainty had previously existed. He had the talent to perceive in cow-pox, small-pox, in its mildest possible form; and he trusted, that the transmission of this to man would ensure the same results as inoculation with the virus of human small-pox. This trust was rewarded by the complete success which attended the prosecution of his views.

137. In the foregoing remarks, I have endeavoured to show that the advance of improvement to the Jennerian standard was progressive, and that it was created by the contemplation of the wants of the human race. Since Jenner's discovery, nearly half a century\* has glided away, half a century, moreover, replete with important and valuable discoveries, both in general and medical science. A portion of that half century has seen the attention of medical practitioners again engaged in considering the imperfections of our present means of defence against small-pox. A third æra of discovery has just dawned. It is seen, that although, as a general rule, the principle announced in the preceding paragraph—namely, that the invasion of the contagious disease is protective against subsequent attacks of the same disease is correct, yet, that exceptions to this rule do occur so frequently, as to indicate the necessity of farther investigation into the nature and history of small-pox, with a view to afford additional security against its ravages. Thus it has been observed, that secondary attacks of small-pox are not unusual, and that small-pox, after vaccinia, very frequently occurs. Instances of the latter kind, indeed, are so often met with, as to lead to the belief that vaccinia gradually loses its protective influence over the system.

138. With a view to meet the declining influence of vaccinia, numerous propositions have been made, and modes of practice adopted, the principal of which are, re-vaccination, retro-vaccination, variolo-vaccination, and an immediate return to the variolæ vaccinæ of the cow. These various modes of re-establishing the protective powers of vaccinia I shall examine in their turn, after having, in the first place, traced the history of the casual vaccinia, as observed and recorded by Mr. Ceeley, and described the effects of ordinary vaccination with Jenner's lymph.

#### CASUAL VARIOLA VACCINA IN MAN.

139. The transmission of the cow-pock contagion to man, presents all the anomalies which are known to accompany exposure to other sources of contagion. Milkers who have never been vaccinated will sometimes escape altogether, while others who have been vaccinated or variolated, will take the disease; and instances not unfrequently occur, in which persons, who regard themselves secure, in consequence of having previously suffered from casual vaccinia, are a second time affected. In all the three latter cases, however, and especially in the last, the disorder is characterized by the manifestation of a much milder type than that of the unmodified disorder. The parts of the body usually affected in milkers are, the

\* Jenner's first experiment was made on the 14th of May, 1796.

backs of the hands, the flexures of the joints and sides of the fingers, and the face. When the eruption appears in the latter situation, the virus is conveyed by means of the hands moistened with the lymph of the ruptured vesicles. On the backs of the hands, and between the fingers, the epidermis is thinner than on the palmar surface, and consequently affords greater facility to its imbibition by the dermoid tissues. For it is satisfactorily proven, that abrasion of the surface is by no means necessary to the inoculation of the disease. When, however, the epidermis is abraded, and the skin chapped and fissured, the effects of the virus are remarkable for severity, subcutaneous abscesses are liable to form, and the lymphatic vessels and glands frequently become inflamed.

140. The signs which indicate that the contagion has taken effect, are the appearance of inflamed spots or papulæ, which are hard to the touch, acuminated, and deep seated. The papulæ are of a deep rose-red, or purplish colour, and are soon surmounted by an ash-coloured, or livid vesicle, which assumes the umbilicated character as it increases in size, and then becomes yellowish in the centre. At this period the areola makes its appearance, lymph is effused beneath the umbilicated epidermis, and a vesicle of variable size, and of a bluish, or slate-coloured aspect, is developed. The local inflammation is sometimes so severe, as to produce sloughing of the dermis and serious constitutional disturbance.

In illustration of this affection, Mr. Ceeley\* has recorded the following interesting case:—

“Joseph Brooks, aged seventeen, a fine, healthy, intelligent young man, who had not been the subject previously of variola, or of the vaccine, stated, that he commenced milking on Friday, the ninth of October, and that his milking was confined to four cows, only one of which had the disease, from four to six vesicles on each teat. He milked these four cows occasionally, and continued to do so till the eighteenth of the same month, (ten days,) having milked them in that period six times. On this day, (the eighteenth,) he felt the cervical absorbent glands and lymphatics stiff and tender, and on the twentieth, found a pimple on the temporo-frontal region, which he could not resist scratching. On the day before that, he observed on his finger a red pimple, of the size of a pin's head; on the next day, one on the thumb, very small. In neither situation was he aware of the pre-existence of any visible wound or abrasion of the cuticle. On the twenty-first he had headach, general uneasiness, and pains in the back and limbs, with tenderness and pain in the course of the corresponding lymphatic vessels and absorbent glands, particularly of the axilla, which increased till the twenty-third, when nausea and vomiting took place. His right eyelids became swollen, and were closed on that day, but after this period he became better, in all respects, never having been confined to the house, although disabled from work. The vesicle on the temporal region had a well-marked central depression with a slight crust, a general glistening appearance, and was of a bright rose or flesh colour, with a receding areola, and there was an inflamed, tumid, and completely closed state of the corresponding eyelids.

“On the finger the vesicle was small and flat, with a slightly depressed centre, containing a minute crust. It had a beautiful pearly hue, and was seated on a bright, rose-coloured, slightly-elevated base. On the thumb

\* Transactions of the Provincial Medical Association, vol. x., p. 216.

the vesicle was also flat and broad, but visibly depressed towards the centre, where there appeared a transverse linear shaped crust, corresponding doubtless with a fissure in the fold of the cuticle. The vesicle was of a dirty yellowish hue, and visibly raised on an inflamed, circumscribed base; lymph was obtained from a vesicle on the temple, in small quantity, by carefully removing the central crust, and patiently waiting its slow exudation. In this, as in most other respects, it strikingly resembled the vesicle on the cow, and appeared as solid and compact. The lymph was perfectly limpid, and very adhesive. No lymph was taken from the vesicles on the finger and thumb, with a view to avoid any interruption of their natural course.

“On the twenty-sixth and twenty-seventh, when the redness and elevation of the base of the vesicles had materially diminished, the vesicles themselves had become greatly enlarged. On the thumb and finger they were loosely spread out at the circumference, each having a dark and deep central slough. On the temple, the margin of the vesicle, as on the cow, was firm and fleshy, its diameter being nearly ten lines, and its centre filled with a dark brown firmly adherent slough. In about seven or eight days, by the aid of poultices, the sloughs separated, and the deep ulcers healed, leaving cicatrices, like variola, deep, puckered, and uneven, which were seen on the twenty-fifth of November.”

#### INOCULATED VARIOLA VACCINA.

141. The inoculation of variola vaccina, or, as it is popularly termed, *vaccination*, consists in the transference of a small portion of the contents of the vaccine vesicle, the vaccine lymph, or virus, to the papillary surface, or to the tissues of the dermis of a sound person. This object is effected by means of a small puncture, by several punctures, or by a number of superficial scratches, with the point of a lancet imbued with the virus. Another, and rarely practised mode of vaccinating, is to make a small incision, and place within it a thread impregnated with the vaccine lymph. The punctures are made obliquely through the epidermis, in order that the papillary surface may be attained without the effusion of blood, or with the escape of as little as possible. The virus which is in this manner introduced into contact with the dermis, is dissolved in the fluids of the tissues, and imbibed into the system, the agency upon the system being indicated by certain local and constitutional effects.

142. The local signs indicating that the vaccination has taken effect, are first apparent on the third or fourth day after the operation, at which period there is a slight degree of elevation and hardness of the skin, (papular stage) at the seat of the puncture, and a trifling blush of redness immediately surrounding it. On the fifth and sixth day, a small quantity of liquor sanguinis is effused beneath the epidermis, and a vesicle is formed, which is whitish and pearly in appearance, of a roundish or oval figure, and umbilicated at its centre. The vesicle goes on increasing in size until the eighth or ninth day, at which period it has become fully distended, and has attained its perfect development. On the ninth day it loses the umbilicated form, it becomes flattened on the surface, and sometimes more convex than at the circumference, and is composed of numerous small cells, which are filled with a limpid and transparent lymph.

On the eighth day, (sometimes the ninth,) the perfect vesicle is surrounded by an inflamed areola, of a vivid red colour, (*the pearl upon the rose*,) which gradually increases in extent, from a few lines to more than two inches in diameter. The skin included by this areola is inflamed and tumefied, and is frequently the seat of eruption of a crop of small transparent vesicles. On the tenth day, the redness and heat have increased; there is considerable itching in the part, the movements of the arm are somewhat painful, and the axillary glands are liable to become tender and swollen. It occasionally happens, that at this period an erythematous blush spreads from the arm, over the surface of the body, in irregular patches.

On the eleventh day the areola begins to diminish, the fluid contained within the vesicle has become purulent, and desiccation commences at its centre, and proceeds gradually towards the circumference. During the succeeding days, the areola disappears more and more, the tumefaction subsides, and the vesicle desiccates into a dark brownish crust, of an irregular form. The crust, by a continuance of desiccation, diminishes in size, and assumes a blackish hue. It is detached at the end of seventeen days after vaccination, and leaves upon the skin a depressed cicatrix, at the bottom of which are seen numerous small pits, (*foveolæ*,) which correspond with the separate cells of which the vesicle was composed. The cicatrix is permanent, enduring for the remainder of life.

To recapitulate: the first two or three days are those of *incubation*; the fourth is *papular*; the fifth, sixth, seventh, and eighth, *vesicular*; the vesicle presenting an *umbilicated* form, and attaining perfection on the last of these days; the eighth day, moreover, is the period of the first phasis of the areola, when the vesicle represents the “true pearl upon the rose;” the ninth, tenth, and eleventh days, are *pustular*, the lymph becomes purulent, the umbilicated form is lost, the areola enlarges, and constitutional fever is established; the twelfth, thirteenth, and fourteenth days are those of *desiccation*; the fifteenth, sixteenth, and seventeenth, of *separation*, and these latter are succeeded by the fall of the scab.

Such is the course of the vesicle of vaccinia, which is considered necessary to the protection of the system. When its progress is irregular, and its development not perfectly effected, the constitution remains in the same state in relation to the occurrence of variolous contagion as before the operation. It must be borne in mind, however, that the local affection is never so well marked in the adult as in the child, although the extension of inflammation to the neighbouring glands and the constitutional fever are often greater.

The proper time for the performance of vaccination is infancy, between the third and the seventh month. At an earlier or a later period, the diseases incidental to childhood may interfere with the progress of the case. Jenner pointed to the fact that certain diseases of the skin, particularly those of a vesicular kind, interfered with the proper development of the vesicle, and other influences are derived from age or idiosyncrasy.

143. The constitutional symptoms accompanying vaccination are always slight, and often scarcely perceptible. In some instances, however, a little fever is observed at about the eighth and following three days, this febrile reaction corresponding with the progress of the inflammation of the areola.

## SECONDARY ERUPTIONS OF VACCINIÁ.

Syn. *Faccinella*.

144. The general effects of vaccination occasionally offer some peculiarities. Thus it sometimes happens, that during the course of the vaccine pock, an eruption of vesicles appears upon the general surface of the skin. Such an eruption lately fell under my observation, in which vesicles and bullæ\* were developed upon inflamed patches, on the greater part of the surface of the body. The principal features of this case are the following:—

GREEN, a child eighteen months old, was vaccinated at the London Small-pox Hospital, on Monday, June 7th, 1841. On the ninth or tenth day after the operation, an eruption of red spots was perceived upon the forehead, which quickly extended to the face, neck, trunk, and arms, and by the thirteenth day were dispersed over the whole of these regions, the redness being augmented towards the evening, and during the night. On the sixteenth day I first saw the patient, the vaccine crust and areola were natural, the eruption had subsided on the face, and was now principally confined to the arms, the chest, and back, the legs being nearly free. In these situations it existed in its successive stages; there were small red spots, the earliest form of the affection, and larger patches, of a roundish or irregular form, of about the size of a fourpenny piece, several of these latter patches being congregated here and there, so as to form clusters of considerable size. The margins of the patches were of a dull red colour, and somewhat elevated, while the centres presented a yellowish tinge, and in some situations were covered with numerous small vesicles, containing a limpid and transparent serum. On the eighteenth day, the redness of the patches was declining, their raised border had become lighter in tint than the centre, and the epidermis was desquamating over their surface, particularly on those patches where vesicles had existed. On the face, the vesicles terminated in thin, brownish, and spongy laminæ. I inoculated a healthy child with lymph taken from these vesicles, but without success.

The following case occurs in the "Archives de Medicine" for September, 1841. An infant a week old was vaccinated July 3rd; on the 10th, several papulæ appeared on various parts of the body. On the fifteenth, there were eleven umbilicated vesicles on the abdomen and legs, similar to those of vaccinia. Three children inoculated with lymph from this eruption had vesicles developed identical with those of ordinary vaccinia.

145. Dr. George Gregory lately reported to the Royal Medical and Surgical Society, the case of a child in whom petchiæ appeared upon the skin four days after vaccination. The child was to all appearance in perfect health. The areola was occupied on the eighth day by an extensive ecchymosis, and the body was covered by petechial spots. By the sixteenth day, the petchiæ had commenced to fade. Five children of the same family were vaccinated at the same time, and with the same lymph, and went regularly through the disease. Dr. Gregory regarded this case

\* Mr. Ceeley regards this eruption of a pemphigoid character as "strictly a vaccine eruption;" he has seen it frequently on children, and occasionally on the cow and dog.



as one of petchial cow-pox, in which the influence of the vaccine virus in the production of a hæmorrhagic state of the system was demonstrated. Petechial cow-pox is rare; Dr. Gregory had never before seen a similar case, and had only heard of two of the same kind.

## PROTECTIVE POWER OF VACCINATION.

146. I now come to a question of the utmost importance—namely, the efficacy of vaccination as a protection against small-pox. But before I engage in this discussion, it may be necessary to define precisely the meaning which I attach to the term vaccination. Vaccination I conceive to mean—

1. That the lymph employed in the operation is pure.
2. That it has been obtained from a vesicle which has passed regularly through the course described in the preceding section.
3. That it has been procured from the vaccine vesicle, between the fifth and eighth day of its course.
4. That the vesicle produced by this lymph in the vaccinated subject shall have passed regularly through the stages known as the natural course of the vaccine pock, and described in the preceding section, (§ 142.)
5. That at least one of the vesicles produced by vaccination shall have been permitted to remain unbroken and uninjured, until the natural vaccine crust shall have been formed, and shall have fallen in the natural course.
6. That the cicatrix shall be well marked, and permanent; perhaps also foveolated.

When the whole of these conditions are complete, vaccination is perfect, and the person so vaccinated may be regarded as protected against small-pox. But if, on the other hand, any of these conditions be incomplete, it would be monstrous to expect that the full influence of the vaccine protection should be exerted. - Again, it has been observed, that the nearer the approach of the condition to the standard above established, the more protective will be the influence effected by the operation, and vice versâ.

147. The purity of the vaccine lymph is a point of the first consequence. The genuine lymph appears to undergo no change or loss of power by indefinite transmission, provided always that due attention have been directed to the fact of its being always obtained at the requisite period, and from a vesicle which has passed regularly through its course, in fact, from the true "pearl upon the rose." But as the attention necessary for the assurance of this condition has unfortunately, in many cases been omitted, much spurious lymph has been mingled with that derived from the original source, and, as a consequence, small-pox after vaccination has become more frequent, and vaccination has fallen into disrepute. It would, however, be unjust and unphilosophical, to attribute this apparent falling off in the influence of the vaccine lymph to any but its true cause, the one just mentioned.

148. The period best suited for obtaining the vaccine lymph is that indicated by Jenner—namely, between the fifth and the eighth day, and before the formation of the areola. After the areola is established, the lymph becomes altered in its characters, and purulent, and either loses the power of exciting a pock, or produces one which is irregular in its appearance or course, and is incapable of conferring safety on the person vaccinated. It

is true, that occasionally the fallen crust is sufficiently impregnated with the desiccated lymph to possess the power of exciting the disease, and is sometimes used as a convenient means of transporting the virus to warm climates; but the crusts for this purpose must be selected with care, and even then are liable to failure.

149. That the vaccine pock shall pass regularly through its course, is the most important of all the conditions requisite for the success of vaccination. Jenner especially pointed out the necessity of this rule, for he perceived that its neglect might lead to the most serious results. That neglect has, I fear, very extensively existed, and many of the distressing consequences under which we now suffer are referrible to it. The fulfilment of this condition is in itself the best assurance of the purity of the lymph, of the disposition of the system to receive its influence, and of the completion of the subsequent conditions.

150. When the vesicle passes regularly through its stages, the cicatrix which it leaves behind is strikingly characteristic, and may be depended upon as a proof of successful vaccination. But the absence of the foveolated appearance of the cicatrix is no proof that the preservative influence of vaccination has not been established, provided that a permanent cicatrix of the ordinary size be present. But when there is difficulty in discovering the cicatrix, or the latter is small, it may unhesitatingly be concluded that the pock did not complete its necessary stages, and, consequently, that the person is still unprotected.

#### VACCINATION TESTS.

151. With the view to ascertain whether vaccination has been effective, several plans have been adopted which are termed tests. The most efficient of these is inoculating with small-pox after vaccination; re-vaccination is a second test; and a third is that described by Dr. Bryce, of Edinburgh. Bryce's test consists in re-vaccinating a few days after the first vaccination. In this case, if the constitution be already affected by the vaccine influence, the second pock hurries through its stages, and speedily reaches an equal development with the first, arriving at its acme at the same time, and desiccating and forming its crust contemporaneously with its predecessor.

#### RE-ESTABLISHMENT OF THE PROTECTIVE INFLUENCE OF VACCINIA.

152. For several years past, opinion has been divided relative to the protective influence of vaccination against small-pox. By some it is believed, that the power of vaccination as a defence against variola diminishes gradually with the advance of age; and by others, it is thought that the vaccine virus introduced by Jenner has degenerated during the forty-six years that it has been transmitted through the human race, and lost a portion of its protective quality. I shall not stop to inquire into the merits of these two questions, both warmly contested and supported by powerful advocates, but at once proceed to examine the propositions that have been made and acted upon for the purpose of supplying a remedy

against the evil consequences which they would imply. As a means of perpetuating the vaccine influence, two modes of procedure have been recommended—namely, re-vaccination, and variolation after vaccination. And with the view to meet the second evil, three plans have been adopted—namely, retro-vaccination, variolo-vaccination, and recurrence to the primary lymph from the cow.

#### RE-VACCINATION.

153. The phenomena of contagion, as it affects the human frame, develop two important facts: *firstly*, that the workings of contagion in the animal organism destroy the susceptibility of that organism to take on a similar action; *secondly*, that, from the moment of completion of the workings of contagion, the organism becomes gradually and slowly restored to the condition which it possessed previously to the development of contagion. In the abstract, these positions are incontrovertible, but they require the modification implied in the estimate of time, to render them applicable to the thousand peculiarities that occur in daily practice. Thus, in relation to the first, we have to inquire,—For what length of time the susceptibility is destroyed? and in relation to the second,—At what period after contagion is the restoration of the organism so far effected, that a second attack of contagious disease may take place? To both of these questions the answer is—*We know not*. All that we can venture to affirm with regard to them is, that, in one individual, a single attack of contagious disease appears to be protective of the individual for life; while, in another individual, a second attack may occur in a short period, the precise limits of that period not being correctly established. The determination of the shortest period at which contagious disease may resume its influence over the system, is a point of much importance, and one of legitimate investigation. It is in the field of numerical medicine alone that we must look for a solution of the questions which are now proposed.

The reasoning which is here directed to contagion in general, applies with particular force to the protective influence of the contagion of small-pox. A single attack of small-pox would appear, in the majority of cases, to protect the individual for the rest of life, but in a smaller number of instances, the variolous constitution is still active, and a second, a third, and even more attacks may be experienced. Now, that which is true with regard to variola is equally true with regard to vaccinia; for variola and vaccinia are, in their essential nature, one and the same disease.\* Again, it is admitted at all hands, that severity in the manifestation of the variolous disease affords no security to the system greater than that to be derived from the mildest form; and as vaccinia is variola in the mildest shape in which it can be presented to the human organism, the question of re-vaccination resolves itself into the propositions stated above.

If we admit that vaccination, although perfectly protective of the consti-

\* It is proper to mention, in this place, that many opinions are opposed to this belief. Dr. Robert Williams observes—"Vaccinia is a disease *sui generis*," and farther on, he remarks—"It is likewise, by no means, proved, that the small-pox and the cow-pox are identically diseases of the same species."—Vol. ii., p. 49. "Elements of Medicine."

tution against the recurrence of the small-pox contagion, for an unknown, and probably variable space of time; and if we, in the next place, inquire what means present themselves of perpetuating this protective influence, the most natural and rational method that suggests itself to our mind, is re-vaccination. Re-vaccination, or a repetition of vaccination, is a simple and harmless operation, producing a mild and trifling indisposition when the system is unprotected, but no effect whatsoever when the organism is safe. Here, then, we find the operation to be acting as a test of the safety of the individual, and no objection can possibly be raised against its use. If the organism be safe it produces no effects; if the organism be unsafe, it produces a trifling inconvenience, but it leaves a bulwark of safety in its train.

The only question that remains to be considered in relation to re-vaccination, bears reference to the periods at which the operation should be performed. This is a matter of trivial import in comparison with the principle which it involves. I would say, let vaccination be performed every five years, or every seven years, or every ten years. But as our object is protection, let us not defer that protection too long. If the operation succeed at the end of five years, that fact affords the strongest proof that the repetition is not too frequent. If it fail at the end of five years, let it be practised at seven; if it fail at seven, make a third attempt at ten; if the operation fail then, it may be used at successive intervals, but the person inoculated has the satisfaction of knowing himself safe, and at a most insignificant inconvenience.

154. Numerous cases have been adduced in which an attack of small-pox has followed vaccination.\* I care not to inquire if vaccination have

\* It must not be imagined that Jenner ever contemplated an infallible remedy in vaccination; he merely expressed his belief that vaccination would be found to protect the organism in an equal, if not in a greater degree, than variola, and with a prodigious saving of suffering and danger. In respect of this expectation, Dr. Robert Williams remarks, that it "has not altogether been verified, the evidence at present accumulated showing the attacks of the latter (secondary small-pox) to be only in the ratio of a half to one per cent., while the attacks of the former (small-pox after vaccination) are not less than five per cent., or from five to ten times greater. It is enough of glory, however, to the discoverer of vaccination, and of honest pride to the profession who have adopted it, to be able to state, that by the discontinuance of the practice of inoculation, the total number of persons attacked by natural small-pox in this country, taking the most unfavourable calculations, is reduced one-half, or probably from 260,000 annually, to about 130,000 annually, while the number of deaths have been reduced in a still greater ratio, or from 60,000 to about 11,000; also, that the accidents incident to the disease, as blindness, deafness, lameness, and the endless catalogue of miseries that follow it, are also reduced almost to nothing. This result is that of England and Wales generally, and it is still capable of being very greatly reduced, for among the better protected class of persons, as the army, only one soldier has been attacked by small-pox in every two thousand, annually, so that, taking the British army at 100,000 men, the mortality is only four from small-pox in the whole of that large force annually. The navy appears also to experience a similar immunity, for out of a mean strength of 7958 seamen, seven only died in seven years of small-pox in the Mediterranean and Peninsular commands, while, in the West Indian and North and South American commands, none whatever. On the Continent, also, where the governments are awakened to the great truth that the health and industry of the lower orders form the surest basis of national wealth and greatness, and where vaccination is consequently made of national importance in the matter of legislation, we find that the mortality from small-pox, though greater than in our army, is infinitely less than in England and Wales generally. In Prussia, for example, according to the table given by Hoffman, on an average of a million

been perfect in those cases, for instances are equally numerous in which small-pox has followed inoculation, and small-pox itself, both discreet and confluent. These facts prove nothing unfavourable to the claims of vaccination as a protective agent against small-pox; they prove only that which daily experience tends constantly to corroborate—namely, that MAN HAS STILL MUCH TO LEARN. There can be no question that instances of variolous constitution exist, in which all preventive means that we can suggest would be utterly futile, but these are, happily, exceptional cases. We are, I fear, completely ignorant of the laws which govern contagious disorders. It has been observed, that rubeola and scarlatina, like variola, occur but once in the lifetime; persons having once suffered from these diseases consider themselves secure from infection, and yet how frequently we have occasion to see the rule nullified, and secondary attacks developed. The following table, quoted from Dr. Heim, in the Report of the Vaccination Section of the Provincial Medical Association, is exceedingly interesting, as showing the relative frequency of success in vaccinating after small-pox, and after vaccination.

Vaccinated after small-pox with success . . . .	32
“ “ modified . . . .	26
“ “ without effect . . . .	42
	—
	100
Re-vaccinated with success . . . . .	34
“ “ modified . . . . .	25
“ “ without effect . . . . .	41
	—
	100

Re-vaccination is at present being performed very extensively on the continent, which would seem to imply distrust in the powers of the primary vaccination. The results of these operations, however, are calculated to increase our knowledge upon this important subject.

The following are the conclusions of the Commission of vaccine, on vaccination performed in France, during the year 1839.

1. That the simultaneous vaccination of the mass instantly arrests the progress of the variolous epidemic.

2. That if vaccinia be not an absolute and infallible preservative against variola, it is at least the most certain, and the most exempt from danger.

3. That varioloid, in the majority of cases, is the only inconvenience to which the vaccinated are exposed.

4. That there seems no reason for the belief that the long vaccinated are not as surely preserved at the present day as they have hitherto been; nor that the recently vaccinated have received less security than those who preceded them.

5. That the complete success of re-vaccination affords no proof that

of deaths, only 8191 were caused by small-pox, or one in 122. In England and Wales, however, out of 141,607 deaths, 5811 were occasioned by small-pox, or one in twenty-five, nearly; thus showing that the country which gave birth to vaccination suffers six times more by small-pox than that of its wiser and more considerate neighbour.—(p. 49.)

the individual had ceased to be protected by vaccination, and that he had again become susceptible of variola.

6. That a second vaccination does not appear to possess the power, any more than the first, of protecting all persons indiscriminately from the risk of a future attack of variola.

7. That government ought not to command a general re-vaccination.

8. That the total extinction of variola is to be effected by the universal adoption of vaccination.

#### VARIOLATION AFTER VACCINATION.

155. Inoculation after vaccination has been proposed as an additional security against the contagion of small-pox. To those who regard vaccinia and variola as different diseases, such a suggestion is likely to be received with approbation, but if we view these disorders in their true light—namely, as one and the same affection, inoculation after vaccination is but a repetition of re-vaccination, and is, consequently, incapable of bestowing any superior advantage.

#### RETRO-VACCINATION.

156. This operation is attended with some difficulty, in consequence of the indisposition evinced by the assimilative powers of one group of animals to the reception of virus derived from a different order. The operation has, however, succeeded several times in the hands of Mr. Ceeley, and its results are conclusive. This gentleman observed a slight increase in the frequency of the pulse of the animal as soon as the inoculation had taken effect, and the local affection was attended with a moderate degree of inflammation. The vesicles were produced late, and good lymph was procured on the tenth day.

157. When children were vaccinated with this retro vaccine lymph, the development of the pock was found to be retarded, the papular stage was not established until the sixth or seventh day, the areola was complete on the tenth or twelfth day, and declined during the following two days. The vesicles, in some instances, were smaller or less firm than usual. With these exceptions no difference could be detected between the retro-vaccine and the ordinary current lymph, and these differences were entirely lost after three removes in the human subject. From these experiments, I think it may justly be inferred, that for the purpose of improving the vaccine lymph, retro-vaccination, or passing it again through the cow, is useless.

#### VARIOLO-VACCINATION.

158. Inoculation with the variolo-vaccine lymph is attended with the same difficulties of transmission as are common in the case of unassimilated virus. Out of twenty punctures inoculated with lymph derived from the variolo-vaccine vesicle, Mr. Ceeley obtained only six vesicles.

These, when they appeared, were characterized by their early inflammation, and by tardiness and irregularity in progress and development. The secondary fever which arose and subsided with the areola was severe, and if the vesicle were ruptured, ulceration and sloughing were liable to ensue. The effects of this lymph are illustrated in the following successful case:—"Emma Jaycock, aged fourteen, dark, swarthy complexion, thin skin, rather florid; two points of sixth day lymph, and four of eighth day lymph, were inserted into six punctures; on the fifth day, four of the papulæ had ash-coloured summits, and seemed vesicular, two were doubtful. On the seventh day, there were five small, distinct, reddish gray, or ash-coloured vesicles, one very small. On the eighth day, the vesicles were advancing, of unequal size, and of irregular form. Here I was forcibly struck with the strong resemblance some of these vesicles bore to those of the eighth day, depicted in Jenner's work on the arm of Hannah Excell, which he thought so remarkably like the results of small-pox inoculation. My patient stated that she felt slightly indisposed on the fifth and sixth day, that the axilla was painful on the seventh day, and that she was then giddy and sick, but felt worse on this the eighth day. On the ninth day, the areola commenced, and she complained only of headach. On the eleventh day it was fully developed, when all her symptoms returned in an aggravated form. On the twelfth day it declined; but the turgid vesicles having burst the flimsy cuticle, renewed inflammation and induration, with circumscribed sloughing and ulceration of the skin, ensued, and rather deep scars are now visible."

After narrating the results of several successive removes of the variolovaccine lymph, Mr. Ceeley remarks, "Nothing could be more satisfactory or gratifying than the progress now made, which it would be needless farther to detail; I shall therefore abstain from the description of individual cases, after adducing one example from the fourteenth remove, as a type of what might be produced in similar subjects—namely, an infant fourteen months old, florid, plump, and healthy, with a fine clear, thick, smooth skin.

"In the majority of instances, in propagating from arm to arm, distinct papulation was apparent on the second day; on the third it was not only visible, but elevated and well defined; on the fifth and sixth, vesiculation was abundantly obvious, and lymph was often taken on those days. On the seventh day, vaccination was frequently performed, and points were often charged; on the eighth the vesicle commonly exhibited a bold, firm, and glistening aspect; between this period and the ninth day the areola generally commenced, (but in young infants, with tense and sanguine skins, it appeared early on the eighth;) by the tenth day, the vesicle was commonly in its greatest beauty and highest brilliancy, glistening with the lustre of silver or pearl, having the translucency and appearance of crystal, or shining with a pale blue tint, occasionally of a dull white, or cream colour, bold and elevated, with a narrow centre and a broad margin, or flat and broad in the centre, with an acute margin, occasionally not raised above the level of the skin; on this and the eleventh day, an extended and generally vivid areola existed, with more or less tension and induration on the integuments. At this time the lymph was frequently pellucid, and often perfectly efficient. From the eleventh to the thirteenth day, gradually increasing in many individuals, both children and adults, sometimes the entire vesicle, at other times only the central parts, reflected a blue or slate-

coloured lymph from the congested or ecchymosed subjacent adventitious structures, proportioned to the texture and degree of translucency yielded by its desiccating epidermis. On the thirteenth and fourteenth day, particularly on clear skins, moderately thick, the vesicles attained a considerable size, measuring often in their longest diameters six and a half, or seven lines, and acquired a light brown centre from commencing desiccation, which was surrounded with an outer margin of dull white, or pale dirty yellow, soft and flaccid, and still possessing fluid contents. During this period, the areola, of a dull red or damask hue, would revive, and decline again and again, and even to the sixteenth or eighteenth day, the period to which complete desiccation was frequently protracted. The crust commonly partook of the form of the vesicle, it was often prominent and bold, varying in colour from that of a chestnut to that of a tamarind stone. It fell generally about the twenty-third or twenty-fifth day, often later."

"The cicatrices were of variable depth and extent. When the vesicles remained unbroken on a thick sanguine skin, they were deep, but on a thin skin, shallow; they were not always proportioned in width to that of the vesicle, the smallest cicatrix often succeeding the largest vesicle, but the later the crust fell, of course the deeper the cicatrix, which, on these occasions, was often beautifully striated. I need scarcely say, that where the vesicles were accidentally broken, or spontaneously burst, much mischief ensued, deep sloughing of the skin, &c. Spontaneous bursting did not often occur, except in those subjects possessing the before-mentioned and well-known obnoxious constitutional endermic characteristics, upon whom we must always use active lymph with some risk.

"When the lymph in the first remove produced normal vesicles, and as soon as it had passed readily from arm to arm, the constitutional symptoms, though mild, were most commonly well marked. In infants, restlessness, fretfulness, and inappetency about the fifth or sixth day, were very common, sometimes as late as the seventh day. Very few escaped feverish symptoms on the ninth and tenth days, many had vomiting and diarrhœa. From childhood up to puberty, the primary symptoms from the fifth to the seventh day were unequivocally visible, and often complained of; fever, vomiting, delirium, and diarrhœa, were not unfrequently witnessed at the commencement, or during the progress of the secondary symptoms. In adults, of course, more complaint was made, headach, chilliness, anorexia, and sometimes thirst, on the fifth or sixth day; increased on the seventh day with axillary tenderness, but on the ninth and tenth days much general febrile complaint, disinclination, and even inability to leave the bed. But in several instances, amongst young children, little or no complaint was made or indicated; all the members of the same family vaccinated from the same source might be differently affected. One, for instance, would not cease from pastime, occupation, or meals, while another, particularly if older, would be indisposed several days. Neither the number nor the magnitude of the vesicles seemed to determine the amount of the primary disturbance. If properly developed, small vesicles often gave rise to marked constitutional symptoms, and the most splendid vesicles were often seen with trivial, sometimes scarcely appreciable disturbance."

"The secondary symptoms are often as active with three or four, as with six or eight vesicles; acceleration of the pulse was frequently noticed, when no other symptoms appeared. Both primary and secondary symptoms very commonly showed a remitting type."



With respect to cutaneous eruptions, Mr. Ceeley observed but one in the adult, and in children nothing approaching the varioloid character. "Roseola, strophulus, lichen, were the principal eruptions."

159. Dr. Basile Thiele,\* of Kasan, has succeeded several times in inoculating the udder of cows. When children were inoculated with matter taken from these pocks, the effects produced were more intense than those occasioned by the ordinary vaccine lymph. In some cases, Dr. Thiele observed two febrile attacks, the one between the third and the fourth day, the other between the eleventh and the fourteenth, and these severe consequences were not lost until the sixth remove. In one case he produced true variola, and inoculation with the matter of these pocks gave him vaccinia.

#### RECURRENCE TO THE PRIMARY VACCINE VESICLE.

160. Lymph has been procured directly from the cow in several counties of England, and numerous children have been inoculated with this primary lymph; indeed, the removes from these sources have now come into almost general use. The gentlemen to whom we are principally indebted for this supply, are Mr. Estlin, of Gloucestershire; Mr. Fox and Mr. Sweeting, of Dorsetshire; and Mr. Ceeley of Buckinghamshire. It has also been obtained and employed in France, by M. Saunoy.

161. Whenever an attempt is made to inoculate man with the virus derived directly from the cow, or, on the other hand, to inoculate the cow with humanized vaccine lymph, or with small-pox, great difficulty is encountered. There would seem to exist an indisposition to the assimilation of virus derived from an animal of a different order, but when this lymph has once become assimilated, all difficulty is at an end. When inoculation is effected, a remarkable difference is perceived in the consequences of the two kinds of lymph; thus, in the transference of the lymph of small-pox to the cow, the virus is greatly modified, and the resulting pock is chastened and mild; while, on the contrary, the lymph of the variolæ vaccinæ first introduced into the tissues of man, gives rise to symptoms of greater severity than those produced by humanized lymph. The effects of vaccination with primary lymph are, according to Mr. Ceeley, as follows:—On the second day after vaccination, there is an unusual degree of redness around the puncture; the redness declines on the following two days, and becomes concentrated in the point where the papula arises. The elevation of the papula commences on any one of the days between the sixth and the tenth. Desiccation of the vesicle is also protracted; it contains fluid until the sixteenth or eighteenth day, and the crust remains adherent until the end of the fourth or fifth week. The areola is completed from the eleventh to the sixteenth day, and is sometimes covered with small supernumerary vesicles, and accompanied by a general eruption of papulæ, vesicles, or bullæ. When the vesicle is ruptured in unfavourable constitutions, irritable sloughing sores are sometimes formed, and the fall of the crust is occasionally succeeded by a yellow, foul excoriation.

The vesicles produced by primary lymph are very variable in appearance, sometimes they are "remakably large, and finely developed," at other

\* Bulletin de l'Academie Roy. de Med., Jan. 1841.

times they are smaller, and "less developed than other vesicles;" but they "admit of a very remarkable improvement, by transmission of the lymph through a series of well-selected subjects. By this process, also, in a very short time, most of the defects and some of the evils connected with the use of primary lymph may be dissipated, and the lymph rendered milder, and more suited to general purposes." "Children are the best, certainly, for the purpose, and such should be selected as possess a thick, smooth, clear skin, and have a dark complexion, and are not too florid, but still plump, active, and healthy." "By a steady and judicious selection of these, and similar subjects, in a few (even three or four) removes, the severity of the local mischief becomes manifestly materially diminished, the vesicles acquire a magnitude and beauty, often greatly superior to what is daily witnessed; and in a short time the lymph may be transferred with safety to others, even more sanguine and robust, where it is well known, lymph, if good for any thing, will produce the finest and most perfect vesicles." "As we advance, we find the necessity of preparing the most objectionable subjects, and the advantage of subjecting many of them to the same preliminary treatment, which the best and most expert inoculators of small-pox formerly so successfully adopted for their patients; for it is a long time before some individuals can be safely vaccinated with this active lymph, even though taken from the mildest vesicle."

162. Recurrence to the primary lymph from the cow appears to me to be the only objectionable method of improving the current lymph, and correcting the deterioration which has arisen from neglect of the precepts of Jenner. Lymph from this source must necessarily be pure, and its use should therefore be encouraged.\*

163. *Treatment.*—Any morbid conditions arising accidentally from vaccination should be treated in accordance with the general principles of therapeutics. Febrile symptoms may call for the employment of antiphlogistic remedies; and the local inflammation, when it assumes a form of unusual severity, may be subdued by means of a poultice. If sloughing or ulceration occur, poultices or water-dressing should be continued until the inflammation is removed, and slight astringent washes applied subsequently.

\* Dr. Lichtenstein, in a paper, entitled "On the sources from which matter preservative against the small-pox has been derived," in Hufeland's Journal for 1841, remarks, that limpid lymph taken from the pustules produced by tartarized antimony, and inoculated in a person who has not been vaccinated, produces vesicles, which cannot be distinguished from those of vaccinia. These vesicles appear to be equally protective against small-pox with the cow-pox, and the matter may be transmitted from person to person in the same manner. The author has inoculated and re-inoculated thirty-one persons with the matter procured from this source; and these persons were protected during an epidemic of small-pox, although placed in association with patients affected with that disease.

## CHAPTER III.

## CONGESTIVE INFLAMMATION OF THE DERMIS.

II. INFLAMMATION OF THE DERMIS WITHOUT CONSTITUTIONAL SYMPTOMS  
OF A SPECIFIC KIND.

164. The diseases assembled under this head have their general characters sufficiently marked by the definition which is here given: they are,—

Erysipelas,  
Urticaria,  
Roseola,  
Erythema.

Erysipelas serves to establish a link of transition between eruptive fevers and the second group of cutaneous exanthemata. In some of its characters—namely, in that of transmission by infection and contagion, and in the presence of fever, which precedes and accompanies the local affection, it possesses a close affinity with the former; while in the frequent development of the disease, without the apparent concurrence of infectious and contagious causes, the absence of protection afforded the system against subsequent attacks, the frequent appearance of the disease without precusory fever, and the partial affection of the skin, it approaches nearer to the latter.

Urticaria seems to deserve a place next to erysipelas, from combining considerable severity of constitutional symptoms with a local eruption. Roseola holds a middle course between urticaria and erythema; while erythema forms a transition to the patches of cutaneous congestion on which the bullæ of the succeeding group are developed.

## ERYSIPELAS.

Syn. *Ignis Sancti Anthonii*. *Erysipele*, Fran.—  
*Rothlauf*, Germ.

165. Erysipelas\* is a diffused inflammation of the skin and subcutaneous cellular tissue, affecting a part of the surface of the body, and accompanied by fever which is contagious and infectious. The local inflammation has

\* Der. *ερυθρος*, red.

a special disposition to spread; it is attended by swelling, a pungent, burning, and tingling heat, and by a redness which disappears under pressure with the finger, to return so soon as the pressure is remitted. It is often accompanied by vesications containing a limpid, amber-coloured serum, which quickly burst, and form thin, dark-coloured crusts. Erysipelas terminates generally in resolution with desquamation of the epidermis, sometimes in delitescence or suppuration, and more rarely in mortification.

166. Erysipelas admits of division into two principal varieties, erysipelas simplex, and erysipelas phlegmonodes. The former of these contains several subvarieties, and some local forms deserving of attention, from the modifications which they present, these modifications being a consequence of the peculiarities of the region in which they are developed. Erysipelas phlegmonodes offers but one subvariety of importance. The varieties and subvarieties of erysipelas may be thus arranged:—

#### ERYSIPELAS SIMPLEX.

<i>Subvarieties.</i>	<i>Local varieties.</i>
Erysipelas erraticum,	Erysipelas faciei,
„ metastaticum,	„ capitis,
„ miliare,	„ mammæ,
„ phlyctenodes,	„ umbilicale.
„ œdematodes,	

#### ERYSIPELAS PHLEGMONODES.

##### *Subvariety.*

Erysipelas gangrenosum.

#### ERYSIPELAS SIMPLEX.

167. The inflammation of erysipelas always extends more or less deeply into the tegumentary textures. That which affects the skin the most superficially, is the form at present under consideration, which would seem to be limited to the dermis and its immediately contiguous areolar tissue. Simple erysipelas occurs most frequently upon the face and head, next in frequency upon the limbs, and most rarely on the trunk of the body. Like other cutaneous diseases, it offers for inquiry, in the first place, its general or constitutional, and in the second, its local symptoms.

The *constitutional symptoms* of idiopathic erysipelas are, chilliness and rigours, succeeded by flushes of heat, dejection of spirits, lassitude, pains in the back and limbs, pains in the head, drowsiness; quick and hard pulse; thirst, loss of appetite, white and coated tongue, bitterness of mouth, nausea, vomiting, pain at the epigastrium, and constipation. These symptoms precede the local disorder for several days, increasing with the progress of the efflorescence, and disappearing at its decline. During the height of the local inflammation, the affection of the nervous

system often becomes exceedingly severe; there is low muttering delirium with subsultus tendinum, an exceedingly rapid pulse, and a brown and dry tongue. At the close of the fever, there is commonly a critical relaxation of the bowels, a sediment in the urine, and occasionally a slight hæmorrhage from some part of the gastro-pulmonary mucous membrane, or from the uterus.

The *local* affection makes its appearance on the second or third day from the commencement of the febrile symptoms, in the form of a somewhat swollen and irregularly circumscribed yellowish red patch, which is accompanied by a painful sensation of tension, and by a sharp, burning, and tingling, or pricking heat. On the third and fourth days, the redness becomes more vivid, the tumefaction greater, and the painful sensations more acute. These symptoms continue without change until the sixth or seventh day, when they begin to decline. The redness then subsides, fading into a pale yellowish tint; the swelling diminishes, the epidermis is thrown into wrinkles, is dry and friable, and speedily desquamates in thin transparent scales. The resolution of erysipelas is the most favourable termination of the disease.

#### *Subvarieties.*

168. *Erysipelas erraticum*.—Erysipelas is remarkably and characteristically disposed to wander from the spot where it was first developed, to extend itself more diffusely, and to fix upon new situations. Sometimes we find it simply spreading, and thus increasing the extent of the inflamed surface; at other times, it subsides entirely upon the parts first affected, as it proceeds in its erratic course, or it suddenly quits its original situation, to appear as suddenly upon one more distant. This erratic or ambulant disposition of erysipelas is often seen upon the face and head, where it is exceedingly intractable.

169. *Erysipelas metastaticum*.—This designation indicates a variety of erysipelas, in which the efflorescence suddenly disappears on the surface of the body, and some internal organ becomes immediately and severely affected. The metastatic form of the disease occurs most commonly in debilitated and broken constitutions, and is particularly observable with regard to erysipelas of the head and face. The organs most liable to suffer from the metastatic action in erysipelas are the brain or its membranes, and the gastro-pulmonary mucous membrane. Metastasis to the membranes of the brain is accompanied by delirium and coma, and usually terminates fatally.

170. *Erysipelas miliare*.—It occasionally happens that a crop of small vesicles, like those of eczema, make their appearance on the inflamed surface. They contain a limpid, serous fluid, burst in the course of a day or two from their eruption, and leave behind them small, brownish-coloured scabs.

171. *Erysipelas phlyctenodes* is a common form of the disease; it is that in which vesicles (bullæ) of considerable size, and irregular in their form, appear upon the inflamed skin. They usually arise on the fourth or fifth day, burst in the course of twenty-four hours from their development, and terminate by forming yellowish scabs, which gradually become brown, and afterwards black. The bullæ contain a limpid serum, at first colourless, but changing by degrees to a pale straw or amber tint. Occa-

sionally the fluid becomes opaque, and sometimes assumes a purplish hue; the latter is an unfavourable sign.

172. *Erysipelas œdematodes*.—In persons of a lymphatic temperament, and in constitutions debilitated by previous disease or excesses, there exists a disposition to the effusion of a serous fluid into the tissue of the dermis, and into the sub-dermoid textures, constituting œdema. In this form of erysipelas the inflamed surface is less brightly red than in the preceding varieties, the surface is smooth, tense, and shining, and a pale depression or pit is left upon the skin by the pressure of the finger. *Erysipelas œdematodes* occurs most frequently in the lower extremities and external organs of generation, and terminates like the simple form of the disease, the effused fluid being removed subsequently by absorption.

#### *Local varieties.*

173. *Erysipelas of the face*.—The face is the most frequent seat of erysipelas. It commences usually on the side of the nose, and spreads rapidly over the whole of one side of the face, extending sometimes to both. The face is so much swollen by the attack that the features are scarcely recognisable. The cheeks are greatly tumefied, and the eyelids turgid and infiltrated. The constitutional symptoms accompanying the local disorder are exceedingly severe; there is violent headach, sleeplessness, frightful dreams, and commonly delirium. The disease reaches its height on the fourth or fifth day, and terminates on the seventh or eighth. It is frequently accompanied by inflammation of the mucous membrane of the nose and mouth, by a swollen and painful state of the parotid glands, and its resolution is occasionally indicated by a critical hæmorrhage from the pituitary membrane. *Erysipelas of the face* is always serious, from the great liability to the occurrence of metastasis to the brain, and it is frequently succeeded by subcutaneous abscesses.

174. *Erysipelas of the scalp* is usually the consequence of a wound or injury to the head, and occurs in about a week or ten days from the reception of the violence. The affected integument is œdematous, smooth, and shining, and very sensitive; but the redness is more dull than in other situations. When left to itself, erysipelas in this region issues in suppuration and gangrene of the areolar and fibrous tissue of the scalp. It often terminates by metastasis to the membranes of the brain.

175. *Erysipelas of the mammæ*.—From the quantity of areolar substance surrounding the mammary gland, erysipelas in this region is disposed to take on the phlegmonous character, and to terminate in extensive suppuration, and gangrene of the fibrous substance. The redness accompanying the exanthem is by no means vivid.

176. *Erysipelas of the umbilical region* occurs in infants, particularly in public institutions, and is referrible to irritation produced by the mismanagement of the umbilical cord, or to some endemic cause. From the umbilicus, the erysipelas extends to the integument of the abdomen, and frequently to the organs of generation. It sometimes gives rise to sphacelus of the integument and subcutaneous areolar tissue, and terminates fatally.

## ERYSIPELAS PHLEGMONODES.

177. Phlegmonous erysipelas is much more severe in its nature than the simple varieties, and affects the deeper seated textures, the subcutaneous areolar tissue, the superficial and deep fasciæ, and the intermuscular areolar tissue, as well as the integument. It may occur on any part of the body, but is most frequently observed in the extremities. This form of erysipelas terminates rarely in resolution, commonly in extensive suppuration, and gangrene of the areolar tissue and fasciæ.

The *constitutional symptoms* are identical with those which accompany simple erysipelas, but more severe, the violence of the symptoms being in great measure dependent upon the extent and depth of the inflammation. When the disease spreads widely and deeply, there is delirium, a dry and brown tongue, frequently diarrhœa, and copious perspirations.

The *local symptoms*, when the inflammation is comparatively superficial, are, vivid redness, which disappears on pressure, and returns slowly on its remission, tumefaction, a smooth shining surface, and an acute burning pain, augmented by the slightest touch. On the fifth or sixth day, if active treatment have not been adopted, the pain diminishes and assumes a throbbing character, the redness subsides, and an obscure fluctuation may be felt over the surface. Suppuration has now taken place more or less extensively, and the pus burrows beneath the skin and fasciæ in all directions, unless released by incision or ulceration. If an incision be made, it gives exit to healthy pus, mingled with small portions of dead areolar tissue. When the inflammation is disposed to terminate in resolution, the redness, pain, and swelling, diminish on the fifth or sixth day, the epidermis becomes dry and scaly, and the effused fluids are gradually removed.

178. If phlegmonous erysipelas attack more deeply seated textures, or an entire member, the inflammation appears suddenly, the pain is more severe and distressing than in the preceding form, and the surface is vividly red, tense, and shining, and exquisitely sensitive. On the fifth or sixth day, and sometimes earlier, suppuration takes place, accompanied by throbbing, and preceded by occasional chills and rigours. The redness and pain diminish on the occurrence of suppuration, and an obscure fluctuation and boggy sensation are felt on the application of the hand. If the parts be opened at this period by a free incision, a large quantity of pus will escape, mingled with considerable flakes of areolar tissue, in a state of gangrene. Should the incision be neglected, the pus spreads completely around the limb, burrowing beneath the fasciæ, between the muscles, and separating the integument from the parts beneath. Eventually, the matter discharges itself by means of ulceration, but the constitutional irritation is excessive; hectic fever is induced, accompanied by colliquative diarrhœa, and the scene quickly closes in death.

179. When the pus is bound down by aponeurosis, or fasciæ, the constitutional effects are still more intense than those above described. The integument, in a few days, becomes livid and dark coloured, large vesicles or phlyctenæ, containing a purplish serum, rise upon the surface, gangrene ensues, attended with entire prostration of the physical powers, and death speedily follows. In some cases, however, when the strength

of constitution of the patient enables him to resist the effects of sphacelus, sloughs are formed, which are thrown off, and a granulating surface is slowly established. The issue of phlegmonous erysipelas in mortification, constitutes the sub-variety, termed *gangrenous erysipelas*.

180. *Diagnosis*.—The principal diagnostic characters of erysipelas are, inflammation of the skin, extending more or less deeply into the subcutaneous areolar tissue; tumefaction of the inflamed parts; a special disposition to spread; and symptoms of a dangerous fever. These signs serve to distinguish it from erythema, in which the inflammation is superficial, being limited to the dermis; there is scarcely any tumefaction of the inflamed parts; the disposition to spread is comparatively absent; and there is little constitutional disturbance. Erythema læve may, at first sight, appear to be a contradiction to these characters, but the œdema in this affection is the cause, and not the effect, as in erysipelas.

The uniform redness of the inflamed surface, and its partial seat, sufficiently distinguish erysipelas from other exanthematous fevers. A few instances have been recorded, in which erysipelas is stated to have been universal, but such cases must be extremely rare.

Simple erysipelas is distinguished from erysipelas phlegmonodes, by the tumefaction of the latter extending more deeply, by the greater severity both of the local and constitutional symptoms, and by the violence of the inflammation expending itself upon the part first attacked, without spreading to distant regions.

181. *Causes*.—Erysipelas appears to originate in infection or contagion, hence it is sometimes seen prevailing epidemically, or running through the wards of an hospital. The predisposing causes are, some inherent peculiarity of the constitution, as in cases where it occurs hereditarily; or some morbid state of the system. It not unfrequently appears in those whose nervous system is debilitated by mental emotions of a depressing kind, as anger and grief; by chronic disease; or by excesses. Under these conditions, the most trifling irritation may give rise to the affection; such as a scratch with a pin, a leech-bite, a blister, seton or issue, &c. In like manner, a wound, either accidental, or occasioned by a surgical operation, may be the exciting cause of erysipelas. Persons with a thin and irritable skin, and members of the female sex, are especially liable to erysipelas. It makes its attacks most frequently in the summer season, and is sometimes dependent on functional derangement, such as amenorrhœa, the critical period, &c. In delicate females it occasionally occurs periodically.

182. *Prognosis*.—The prognosis of erysipelas depends upon the various circumstances enumerated among the causes. When the fever is moderate, the constitution sound, and the local inflammation not extensive, the disease may be regarded as of little consequence. When, however, the constitution is debilitated, the invasion of erysipelas is to be apprehended, not only from the deficient power of the system, but also from the liability which exists to inflammation of the superficial veins and lymphatics, and purulent deposits in the viscera. The prognosis is also unfavourable when it occurs either in the very young, or in the very old; when it is associated with a wound; when it is complicated with vomiting, or vomiting and purging; or when it succeeds to anasarca. The metastatic form is always dangerous, from the possibility of some vital organ being secondarily attacked. Erysipelas erraticum occurring in the progress of chronic disease,



is also of dangerous import. Phlegmonous erysipelas, on account of its severity, is always dangerous, and requires the most vigilant care.

183. *Treatment*.—The management of erysipelas presents two indications—*firstly*, to subdue the fever; and *secondly*, the local inflammation.

The first of these indications is to be effected by means of rest, milk diet, gentle laxatives, salines, diluents, &c. If the patient be young and plethoric, a bleeding from the arm may be advisable, followed by a brisk purgative. But if the subject be debilitated, depleting measures are highly dangerous, and tonics must be employed. Under all circumstances, it must be borne in mind, that erysipelas is a disease of reduced powers, and, consequently, so soon as the artificial excitement produced by the fever shall have passed away, our efforts must be directed to the restoration of the tone of the system.

Dr. Robert Williams, whose observations on erysipelas entitle him to the highest respect, remarks:—"The mode, then, in which I am in the habit of treating idiopathic erysipelas, whatever may be the part affected, or with whatever symptoms it may be accompanied, is as follows:—The patient is put on a milk diet, the bowels gently opened, and from four to six ounces of port wine, together with sago, allowed daily. This mode of treatment it is seldom necessary to vary throughout the whole course of the disease; for the delirium, if present, is generally tranquillized; if absent, prevented; the tongue more rarely becomes brown, or only continues so for a few hours; while the local disease seldom passes into suppuration or gangrene. In a word, all the symptoms are mitigated, and the course of the disease shortened. I have pursued this system for several years, and I hardly remember a case in which it has not been successful."\*

Dr. Williams records several remarkable instances of the advantages of this method of treatment. He does not limit the quantity of wine above stated, but in more severe cases, when the local disease still continues to extend, and the delirium to augment, he increases the wine to eight ounces, and adds to it the influence of quinine. "Two cases of erysipelas," continues the author, "not less instructive, were recently treated in St. Thomas's. The patients were both stout, healthy young women, and nearly of the same age; the seat of the disease also was the same, on the head and face, and they suffered equally from delirium, so that the difference between them, if any, was scarcely distinguishable. For the one, four ounces of wine were prescribed on the Saturday, and there appeared no sufficient reason to increase the quantity on the Monday; but, between Monday and Thursday, the day on which I next saw her, she had so sank, that it was impossible to recover her. The other case was admitted about three days later, and, in the first instance, only four ounces of wine were prescribed for her, but, warned by the fate of the former person, although she was highly delirious, I immediately increased the wine to eight ounces, and added also two grains of quinine every six hours. Under this treatment she rapidly recovered, so much so, that in four or five days it was thought practicable to reduce the wine to its original quantity, or to four ounces. But on this reduction being made, the disease immediately returned, and it was once more necessary to raise it to eight ounces, and the patient now rapidly recovered." As a commentary on the treatment

\* Page 284.

advocated by Dr. Williams, I may mention, that the worst case of erysipelas of the head and face I ever saw, was cured by Burton ale.

By some practitioners, an emetic has been strongly recommended in the outset of the fever, and followed up during its progress by small doses of tartarized antimony. The excitability which accompanies the fever is to be calmed by sedatives, such as hyoscyamus and morphia, as circumstances may suggest, the latter remedy being frequently necessary at night, and in the more advanced stages of the disease. Two very valuable and important medicines in erysipelas are aconite and belladonna; both of these remedies act by reducing the excitement of the arterial system, and procuring rest. The extract of aconite is especially useful in checking the heart's action, and promoting cutaneous transpiration, and for this purpose should be administered in half-grain doses every four hours. Mr. Liston remarks, that after the aconite has performed its office, the extract of belladonna, in doses of one-sixteenth of a grain, is productive of the most beneficial effects.

In erysipelas about the head and face, the feet and legs of the patient should be immersed in a mustard bath, and mustard poultices or blisters applied to the calves of the legs.

184. The second indication—namely, that which relates to local treatment, is to be fulfilled, in milder cases, by rest, position, evaporating lotions, warm fomentations or water-dressings, the temperature of the applications being determined by the feelings of the patient. In more severe cases, the congestion of the vessels of the skin is best relieved by puncturing the surface very freely with the point of a lancet, and afterwards using warm sedative lotions and fomentations of chamomile and hops.

This practice was followed by Sir Richard Dobson for many years, and always with the most favourable results. He observes, that the punctures heal in the course of a few hours, that he makes them on every part of the body, and that he never saw any ill consequences result. Sir Richard Dobson was in the habit of making from ten to fifty punctures, about a quarter of an inch in depth, on the inflamed surface, and repeating the operation two or three times a day, as the case appeared to demand. Mr. Liston advocates the same plan. For some time I have pursued this method in the local treatment of erysipelas, and always with the most gratifying effects. It is surprising how quickly the tension and pain are diminished, and the tumefaction reduced.

Great benefit is sometimes derived from the application of a weak solution of nitrate of silver to the inflamed surface, as recommended by Mr. Higginbottom. This remedy is not applicable, however, when the cellular tissue is involved, or when the inflammation of the skin is very extensive. In a case I had once the opportunity of inspecting, after the treatment of a most determined advocate of this method, I found pus in large quantities among the muscles of the fore-arm, and a considerable quantity in the elbow-joint, effects which I attributed to the remedy. The most convenient formula for application is a solution of the strength of ten grains to an ounce of distilled water, which should be lightly pencilled on the surface.\* While these measures are being adopted, the extension of the disease may be prevented, by encircling the inflamed part by a line drawn with a wetted

\* An ointment of nitrate of silver has also been recommended as useful in erysipelas.

stick of nitrate of silver. When an extremity is attacked, the defensive cordon must extend completely around the limb, above the affected part, and if this simple manœuvre be properly performed, the inflammation will, in many cases, be limited to the part first attacked. Nitrate of silver appears to act, by exciting an effusion of lymph and adhesive inflammation in the line of its application, which opposes an obstacle to the propagation of the exanthema. The erratic form of erysipelas may frequently be fixed to the spot originally affected, by the application of a blister; and this is the practice usually resorted to, for the purpose of recalling the disease, where it has suddenly disappeared by metastasis. In erysipelas phlyctenodes the vesicles should be opened, and the contained fluid gently pressed out, and absorbed by a soft sponge. The epidermis of the phlyctenæ should be preserved as entire as possible, and replaced upon the denuded dermis. This manner of treating the vesicles of erysipelas is infinitely superior to the ancient plan of covering them with starch powder, zinc powder, &c. Œdematous erysipelas is especially benefited by the punctures above recommended, followed, when the inflammation is subdued, by compression with a bandage. Erysipelas of the scalp, when it affects the deep-seated textures, as in wounds and bruises of the head, is instantly relieved, and the danger of the disease mitigated, by a free incision carried down to the bone.

Velpeau recommends a solution of sulphate of iron, in the proportion of an ounce to the pint of water, as a local application in erysipelas. This solution, he remarks, produces a sudden improvement in the patches, and causes their decline in one or two days. As frequently as new patches make their appearance, they are to be treated in the same manner, until the constitutional morbid influence is expended. In situations where a lotion would be inconvenient, this surgeon employs an ointment, containing a drachm of the salt to an ounce of lard.

185. Phlegmonous erysipelas requires great activity of management. At the outset of the inflammatory attack, the patient should be bled and freely purged. The affected parts should be placed in a position to facilitate the circulation through the limb as much as possible. A number of leeches should be applied, and followed by fomentations and warm water dressing. If these means fail to restrain the progress of the disease, two or more incisions, according to the extent of the inflammation, should be made through the affected tissues, so as to divide freely the superficial and deep fascia, and offer a free passage to any pus that may have been formed. To effect this object completely, the incisions should be two or three inches in length, and sufficiently deep. The advantages of this mode of treatment are obvious, the congested vessels of the inflamed part are relieved, and the tendency to morbid action consequently diminished. The tension, pain, and tumefaction are reduced, even where no matter is already formed, and when suppuration is established, a free outlet is given to the pus, and flakes of gangrenous areolar tissue. Whenever we are led to infer, from the severity of the constitutional symptoms, that pus is bound down by fascia, as in the hand and foot, a free incision is the proper treatment, even although no swelling may be present. After the incisions, the fomentations and warm water dressing should be continued; and on the decline of the inflammation, a bandage applied, to facilitate the absorption of the fluids effused into the surrounding tissues.

The general treatment applicable to erysipelas phlegmonodes is the same

as for simple erysipelas, and sedatives are especially valuable. As soon, however, as the immediately inflammatory symptoms have subsided, tonics must be employed and aided by a more generous diet.

## URTICARIA.

Syn. *Uredo*. *Nettlerash*. *Fièvre ortiée porcelaine*. *Essera*, Ital.—*Urticaire*, Fran.—*Brennesselausschlag*, Germ.—*Cnidosis*.—Alibert.

186. Urticaria, or nettlerash, is a transient and non-contagious inflammation of the skin; it is characterized by the eruption of small elevations, having a round, oval, or wheal-like form, of a whiter or redder tint than the healthy integument, and surrounded by a diffused redness of greater or less intensity. Urticaria is preceded and accompanied by febrile symptoms, and is associated with more or less irritation of the gastro-pulmonary mucous membrane. The eruption is attended by itching, and by a burning and tingling sensation like that produced by the sting of a nettle, and is occasionally followed by slight desquamation of the epidermis.

187. The varieties of urticaria, distinguished by Willan, are six in number, of which, two are referrible to the acute, and four to the chronic form of inflammation. The six varieties are,

<i>Acute.</i>	<i>Chronic.</i>
Urticaria febrilis,	Urticaria evanida,
" conferta.	" perstans,
	" subcutanea,
	" tuberosa.

### URTICARIA FEBRILIS.

188. Febrile nettlerash is especially characterized by the presence of severe constitutional disorder. It commences with a sense of weight and sickness at stomach, white furred tongue, quick feverish pulse, pain in the head, anxiety, lassitude, faintness, and drowsiness. On the second day from the invasion of these symptoms, the patient is seized with rigours, which are followed by the eruption upon the skin of irregular patches, of a vivid red colour, slightly raised above the level of the surrounding surface, and studded with whitish or reddish elevations and wheals. The patches are dispersed in various situations upon the surface of the body; they appear and disappear unexpectedly, and without order, and they may be produced instantly on parts apparently unaffected, by simply rubbing or scratching the skin. They are irregular in size and form, pale and little developed during the day, but brightly red towards the evening, and during the night, at which the febrile symptoms exacerbate, and the itching and tingling become more intense and troublesome.

On the outbreak of the eruption, the pain and sickness at stomach are immediately relieved, but they are disposed to recur at each temporary disappearance of the rash. The disease usually runs its course in about a

week; at the end of that period the febrile symptoms and the eruption decline; the bright and vivid red of the patches subsides into a pale and yellowish purple, and speedily disappears, leaving behind it a slight mealy desquamation of the epidermis, and sometimes œdema of the subcutaneous areolar tissue.

189. Although febrile urticaria may be regarded as a mild form of cutaneous exanthema, yet it is always troublesome and distressing to the patient, from the irritation by which it is accompanied. Frequently it creates alarm by the anxiety about the precordia and the syncope which attend its invasion; and instances are not wanting in which it has proved fatal. "I saw it terminate fatally," says Willan, "in the case of a man about fifty years of age, who had impaired his constitution by hard labour and intemperance. On the first and second day of August, 1792, he complained of nausea, and of great pain in the stomach, which was increased on pressure. He was very thirsty, had a quick pulse, and a slight delirium at night. On the third and fourth day of August, a number of elevated wheals and red patches were diffused over the body, with much heat and itching of the skin. While the rash continued vivid, his internal complaints abated, but on its sudden disappearance about the fifth day, the febrile symptoms and delirium became more violent than at first. On the sixth day the eruption appeared again on his face; he was, notwithstanding, very hot, restless, and delirious; he remained in the same state during the following day, and died in the evening." The same author also relates a very distressing state of this malady which occurred in a gentlewoman, twenty-seven years of age, and returned at intervals of a week for a considerable length of time.

190. Febrile urticaria frequently attacks children, particularly during teething, and in them is remarkable for its unexpected development. Dr. Underwood observes that it "occurs in children more generally under two years of age, and is exceedingly troublesome to the infant, as well as matter of surprise to parents, from the suddenness of its appearance. Children going to bed perfectly well, wake very uneasy, and frequently continue screaming for some time before the cause is discovered. But upon examining the body and lower limbs, they are found covered with large wheals, similar to those produced by the sting of nettles."

191. *Urticaria ab ingestis*.—The symptoms produced by noxious alimentary substances are very remarkable and severe, and in some instances have proved fatal, particularly when shell-fish have been the cause. The attack comes on suddenly, as, for instance, in the middle of the night after a hearty supper, or a few hours after the exciting meal. The patient suffers from weight, and an uneasy feeling in the stomach, accompanied with nausea and giddiness, and sometimes by vomiting and diarrhœa, a prickling sensation in the throat, and constriction in the fauces, which produces a short, troublesome cough, and occasionally threatens suffocation; the tongue is swollen, and the voice altered, from the extension of the swelling of the mucous membrane into the larynx. The face shortly begins to swell, while the ears, the nose, and lips, are burning hot, and itch violently. By degrees the eruption spreads to the trunk of the body, and from the latter to the limbs, affecting the joints particularly. When the rash reaches the extremities, the disagreeable symptoms pass off, and the patient recovers. This kind of attack gene-

rally terminates at the end of two days, and sometimes after a few hours, leaving behind it little or no trace of its existence.

#### URTICARIA CONFERTA.

192. *Urticaria conferta* is merely a severe degree of the local affection of urticaria. The elevation of the circular prominences and wheals is not so great as in the preceding variety, but they are more numerous, and frequently coalesce, and are attended with considerable inflammation of the surrounding skin. The itching and tingling are exceedingly severe, particularly at night, and the integument is tumid and swollen. This form of the affection is apt to continue for several weeks.

#### URTICARIA EVANIDA.

193. *Urticaria evanida* is a chronic variety of nettlerash, appearing and disappearing upon the skin in the form of white, roundish prominences and wheals, without febrile symptoms, and with trifling redness. The eruption is not the less attended with troublesome itching and tingling, particularly on the removal of the dress at bed-time, and on the return of warmth, induced by the bed-clothes. It is chiefly remarkable for its duration, lasting sometimes for months, and even for years.

#### URTICARIA PERSTANS.

194. *Urticaria perstans* differs from the preceding only in the persistent character of the eruption, which does not disappear, as in *urticaria evanida*, but continues unchanged for two or three weeks. It occurs chiefly on the limbs, and rarely on the trunk of the body. The gastric disorder, with the itching and tingling under the influence of heat, which are typical of urticaria, are also present in the persistent variety.

#### URTICARIA SUBCUTANEA.

195. Under the above title, Willan has described a nervous affection of the limbs, accompanied at intervals with an eruption of urticaria. "The eruption," writes Willan, "occurs at distant periods, and continues only a few days at each return, but the patient is harassed during the intervals, as well as during the eruptions, with a violent, and almost constant tingling in the skin, and with other distressing symptoms. The complaint is at first confined to one spot on the leg or arm, and commences there with a sensation of tingling, or stinging, which is afterwards felt more and more extensively along the limbs, or perhaps over nearly the whole surface of the body. Sudden changes of the temperature of the air, and agitation, of mind, occasion increased uneasiness in the skin, so that pains are sometimes felt as from a sharp instrument puncturing in different directions; at other times, as from needles piercing,

or pushing the skin upwards. There is usually a stiffness and slight torpor in the muscles of the parts most affected, an appearance of wheals takes place on the arms, chest, or lower extremities, from time to time, especially during the summer. In most of the cases that I have seen or known, the complaint was partial, affecting only the loins and thighs, or sometimes the arms." In illustration of this disease, Willan records the case of a lady, which appears rather to resemble a chronic affection of the spinal cord, attended occasionally with the eruption of urticaria. Stinging and pricking in the integument is a common affection in diseases of the nervous system, but this surely affords no grounds for the designation, *subcutanea*, as applied to this variety.

#### URTICARIA TUBEROSA.

196. Urticaria tuberosa appears chiefly in debilitated constitutions, and is a rare form of cutaneous disease. It has received its designation from being characterized by the production of elevations of considerable size, and extending deeply into the subcutaneous areolar tissue. These tumours are developed, with much itching, during the night, upon the arms and legs; they are painful and hot, and disappear before the morning, "leaving the patient weak, languid, and sore, as if he had been bruised, or had undergone much fatigue." The disease "often proves tedious and obstinate; I have known it continue," says Willan, "upwards of two years, with a few short intervals. The only causes to which it could, with probability, be attributed in the instances presented to me were, irregularities in diet, violent exercise, taken by persons usually sedentary, and the too free use of spirituous liquors."

197. *Diagnosis*.—The diagnostic characters of urticaria are—*firstly*, the appearance of the eruption, which resembles the whitish elevated spots and wheals produced by nettles; *secondly*, the itching, tingling, and pricking, which accompany the eruption; *thirdly*, the evanescent and fleeting habits of the eruption; and *fourthly*, its association with symptoms of gastric irritation. These characters, well appreciated, sufficiently distinguish it from every other cutaneous eruption.

The only affections to which urticaria bears so close a resemblance as to deserve remark, are lichen urticatus and erythema nodosum. The pimples of lichen, however, are much smaller and harder than the large, soft, spots of urticaria. They are, besides, redder in their colour than the surrounding skin, and persistent. Erythema nodosum can only be mistaken for urticaria tuberosa; but the tumours of the former are larger, and continuous in their progress, while those of the latter are developed in the space of a few hours to disappear as quickly.

Urticaria is occasionally complicated by the presence of other diseases of the skin, as erythema, roseola, lichen, and impetigo. It has also been observed as a complication of rubeola, variola, and prurigo.

198. *Causes*.—The causes of urticaria are referrible to irritation of the gastro-pulmonary and genito-urinary mucous membranes. Thus it is induced by dentition, by gastric irritation, by intestinal irritation, by uterine irritation, and, more rarely, by pulmonary irritation. Mental excitement or anxiety, fatigue, exposure to cold or heat, also contribute towards its development, and occasionally it is seen in association with rheumatism.

It occurs chiefly in the summer season, and is said to be more prevalent in cold climates, as that of Russia, than in those of the south. Those who possess a thin and irritable skin, who are plethoric and of a sanguine temperament, are most liable to the disease, and for this reason it is more common in the female than in the male sex. It is very frequent in children, particularly during the period of dentition.

The alimentary substances which are capable of exciting urticaria, act upon the system by means of the irritation which they cause to the mucous membrane of the alimentary canal. In some instances, this irritation is referrible to the natural susceptibility of the individual; while in others, the probable cause is a poison generated by putrefactive decomposition. The substances which have been observed to give rise to these effects in different persons, are very numerous; they are—some kinds of fish, as mus-sels, lobsters, crabs, shrimps, oysters, dried fish, &c.; certain meats, such as pork, goose, &c.; certain fruits and vegetables, as almonds, strawberries, raspberries, cucumbers, mushrooms, &c. Rayer mentions oatmeal gruel, as occasionally producing this effect; and certain medicines, as valerian, copaiba, &c. A member of my own family suffers, constantly after taking rice milk. Dr. Gregory was affected by the disease, after eating part of a cucumber; and he mentions two instances, of persons attacked in a similar manner, from drinking porter. Dr. Winterbottom was “twice violently affected by eating the sweet almond.” Urticaria has been observed occasionally as a critical eruption, and it has been stated by some authors to have occurred epidemically.

Persons of great cutaneous susceptibility have the power of exciting the eruption at any time, by merely scratching the skin.

199. *Prognosis.*—Urticaria is not, in itself a dangerous disease. The acute form is easily removed by appropriate treatment. Chronic urticaria is frequently symptomatic of mucous irritation or visceral disorder, and may consequently prove obstinate, resisting all therapeutic measures, until the disease of which it is a dependence is relieved. Retrocession of this eruption has sometimes been followed by a serious aggravation of internal disease.

200. *Treatment.*—The treatment of febrile urticaria should be strictly antiphlogistic; in some cases it may be advisable to deplete by general bleeding; in others, abstraction of blood from the neighbourhood of the organs especially affected, by means of leeches, may suffice. The rest of the treatment should consist in the administration of aperients, maintaining an abstemious and cooling diet, using the warm bath and foot bath occasionally, and, if the seat of the visceral disorder be apparent, applying a blister over the organ affected. During convalescence, if the powers of the system have been reduced, tonic medicines, combined with alkalies, should be prescribed.

Where difficult dentition is the cause of the eruption, the gums must be laid freely open with the lancet; the little patient should be immersed once or twice daily in a warm bath, and some gentle antacid aperient administered.

When the cause of the eruption is the ingestion of noxious and indigestible substances, no time should be lost in obtaining the ejection of the offending matters. For this purpose, the sulphate of zinc, or sulphate of copper, are best suited; or if these be objected to, the ordinary emetic of ipecacuanha, either alone, or combined with tartarized antimony. Willan



cautions us to avoid the latter salt, from its liability to operate too violently, and give rise to faintings. The employment of the emetic should be followed by a dose of castor oil, or some simple cathartic, and Plumbe recommends from twenty to forty drops of æther, to be given every half-hour.

Chronic urticaria calls for the use of aperients, counter-irritants, tonics, warm and cold baths, careful attention to regimen, and the avoidance of all indigestible substances. Urticaria tuberosa is often so severe, as to require depletion by venesection, and active antiphlogistic measures. Whenever the disease assumes an intermittent form, it must be treated with bark or quinine, like ordinary intermittent fever.

The intense itching and tingling which frequently accompany urticaria are best relieved by means of narcotics. Acetous and alcoholic lotions and lemon juice are sometimes useful for a similar purpose.

If the eruption show a disposition to recede, or if it have already receded, blisters should be applied to the skin; or the surface well-rubbed with some stimulating liniment, such as that of croton oil, in order to restore the eruption, or to set up an equivalent action in the skin.

## ROSEOLA.

Syn. *False Measles. Rose-rash. Roseole, Fran.*

201. Under the name of roseola, Willan has described certain forms of cutaneous inflammation, some of which seem to occupy a middle position between erythema, urticaria, and rubeola, without being strictly referrible to either; while others ought more properly to be considered under one or other of the before-mentioned orders. The title of this affection is, perhaps, the most objectionable in the entire nomenclature of diseases of the skin, since colour can only be an accidental character, depending for its existence upon a greater or less congestion or distention of the vascular rete of the dermis, and, therefore, liable to constant change from trivial causes. The true characters of the disorder must evidently be sought in the morbid conditions which collectively constitute the real disease. With these remarks, I shall proceed to define roseola by means of those symptoms which appear to be characteristic of this affection.

Roseola is a non-infectious and non-contagious inflammation of the skin; it is characterized by febrile symptoms which assume the sub-acute type, and by patches of uniform redness, of small size, and irregular form, distributed over more or less of the surface of the body. The exanthema is transient, and the eruption, at first brightly red, subsides into a deep roseate hue, which disappears by slow degrees.

202. Willan has described seven varieties of roseola, to which three, namely, roseola, rheumatic arthritica et cholericæ, have been added by Bateman and Rayer. The whole of these forms may be arranged into two groups:—*idiopathic*, in which the exciting cause is not immediately manifest; and *symptomatic*, which depend obviously upon some local source of irritation, or are associated with some existing disease. These are—

<i>Idiopathic.</i>	<i>Symptomatic.</i>
Roseola infantilis,	Roseola variolosa,
"    æstiva,	"    vaccina,
"    autumnalis,	"    miliaris,
"    annulata.	"    rheumatica,
	"    arthritica,
	"    cholericæ.

## ROSEOLA INFANTILIS.

203. In roseola infantilis, the patches of redness are of small size, and closely grouped together, and they resemble in general appearance, the eruption of rubeola. They are subject to much variety in relation to extent, duration, and the local inconvenience to which they give rise. Thus, in one case, they are limited to a small district of the skin, or to the limbs, while in others they are dispersed over the whole entire body. In one case, again, they are fleeting, and disappear in the course of a day or two, while in others they are prolonged to a week or more. Sometimes they are productive of little inconvenience, and at others, excite itching and tingling of the most wearying kind. The constitutional symptoms, like the other characters of the affection, are marked by uncertainty in respect of degree; in some subjects the febrile indications are severe and active, while in others they are transient, and speedily decline.

## ROSEOLA ÆSTIVA.

204. Roseola æstiva is the common form under which the disease presents itself in the adult; it is developed, as implied by its name, chiefly in the summer season, and attacks persons of a weakly and irritable state of system, particularly of the female sex. The disorder usually commences with the ordinary series of febrile symptoms of the slighter kind, namely, with chills succeeded by flushes of heat, languor, pains in the head, back, and limbs, restlessness, quickened pulse, and thirst. These are followed, in a few days, varying in number from three to eight, by an eruption appearing first about the face, neck, and arms, and then extending to the body and lower extremities. In general appearance, the rash resembles rubeola, but on closer examination, is found to consist of patches of larger size, and more irregular form, and, at a later period, the difference is still more striking, in consequence of the change of tint to a dark, roseate hue. The fauces are also affected by the disease, presenting a deep red tint, with some degree of swelling of the mucous membrane, and enlargement of the tonsils. The eruption appears ordinarily in the evening, and arrives at its height on the following day, being accompanied by tingling and considerable itching. On the fourth day, the rash begins to fade, and on the fifth, disappears, together with the constitutional symptoms.

The eruption is sometimes local in its attack, being confined to the face and neck, which become tumefied, and exceedingly painful. It is liable also to delitescence, in which case the constitutional symptoms are aggravated, and relieved only by the reappearance of the rash.

## ROSEOLA AUTUMNALIS.

205. *Roseola autumnalis* is evidently referrible to erythema; it is met with chiefly among children, and during the autumnal season. The constitutional symptoms are very slight, being limited to a trifling indisposition. The eruption appears in roundish circumscribed patches of about the size of a shilling, and of a very dark hue; seeming, at a distance, “as if stained by the juice of black cherries or mulberries.” The patches occur the most frequently upon the arms and legs, rarely on the face and body. They continue for about a week, give rise to very little itching or local inconvenience, and are succeeded by a slight furfuraceous desquamation.

## ROSEOLA ANNULATA.

206. This form of roseola is very analogous to erythema circinnatum; it is characterized by the figure of the eruption, appearing, in the first instance, as small red circular spots, and increasing in a short space of time into rings of variable size, having a central area of healthy skin. This eruption possesses all the general characters of roseola, as described in *roseola æstiva*. It appears after a slight attack of constitutional symptoms, which are relieved by the outbreak of the eruption, and aggravated if it should chance to recede; it occasions considerable itching and tingling of the skin during the night, so as frequently to destroy rest, and affects, more or less extensively, the mucous membrane of the fauces. When the disease sets in with severe symptoms, it terminates, like *roseola æstiva*, at the end of a week or ten days. When, however, it assumes a milder type, it may endure for several months, and recur at intervals. Willan relates the case of a lady who suffered from this disease for several months together, for three successive years. I agree with Rayer, that “the description of this variety must be ultimately blended with that of erythema annulatum.” [E. circinnatum.]

## ROSEOLA VARIOLOSA.

207. Variolous roseola is an erythematous inflammation of the skin, which not unfrequently attends upon the eruptive fever of inoculated small-pox, appearing on the second day from the commencement of the constitutional symptoms, and upon the ninth or tenth after inoculation. It shows itself, in the first instance, on the breast, the face, and arms, and then extends, during the second day of its eruption, to the trunk and lower extremities; on the third day, the roseate rash diminishes in vividness, and on the fourth, subsides altogether. The proportion in which roseola occurs in inoculated small-pox, is one in every fifteen cases. In natural small-pox it is more rare.

Variolous roseola has been regarded as favourable to the prognosis of small-pox, and indicative of a mild eruption. When, however, the colour of the rash is deep and dusky in its tint, and the eruptive fever severe,

the most dangerous form of small-pox may be apprehended. In some instances of inoculation, the roseola has been known to supersede the eruption of the small-pox, and the patient is said to be equally protected against variolous infection. It occurs chiefly in persons endowed with a delicate and irritable skin.

In the management of cases of this affection, it is desirable to guard against the retrocession of the rash. For this purpose, the patient should be confined to his room, although children so affected are frequently carried into the air, and exposed to the cold without any inconvenient results.

#### ROSEOLA VACCINA.

208. Roseola vaccina is an eruption similar to that which accompanies variola; it follows the development of the vaccine vesicle, appearing on the ninth or tenth day, but much more rarely than after inoculation. It occurs in the form of small erythematous patches, which seem to be propagated from the inflamed halo of the vaccine vesicle, and, in some instances, are diffused over the entire surface of the body. The eruption rarely lasts more than two days, and appears only in children possessed of a delicate and irritable skin.

#### ROSEOLA MILIARIS.

209. Under the name of roseola miliaris, Bateman describes an erythematous inflammation of the skin, accompanied by the development of small vesicles, which he observed towards the close of continued and typhoid fevers. This eruption consisted of oval-shaped and slightly raised patches, which appeared upon the arms and breast, and were accompanied by a decided remission of the febrile symptoms. The patches increased in size for the space of three days; they were of a bright rose colour at first, diminishing gradually in redness, and assuming a bluish tint, and at the end of this period they disappeared altogether.

#### ROSEOLA RHEUMATICA ET ARTHRITICA.

210. Rheumatic and arthritic roseola is an erythematous inflammation of the skin, appearing in spots and patches, of various size and form, and upon different parts of the body, in persons affected with rheumatism or gout. In some instances, the eruptions precede the attack, which invades immediately upon their decline; in other cases, the eruption appears during the progress, or towards the close of the disease. In Wurtzburg, where rheumatism is endemic, and very severe, the exanthem makes its attack at the commencement of the disease, and after one or two days of suffering from gastric and febrile affection. The eruption in this case consists of small roundish spots, which first show themselves upon the legs, and thence extend to the rest of the body. They present the deep rosy colour, subsequently becoming purplish and livid, which is characteristic of roseola.

## ROSEOLA CHOLERICA.

211. This form of roseola rests upon the observation of Rayer, who saw the variety during the prevalence of cholera, in Paris, in 1832. "After the period of reaction," he says, "there occurred in some patients, especially in women, an eruption which, most generally, appeared on the hands and arms, and then extended to the neck, the breast, the belly, and the upper and lower extremities. At its commencement, it was characterized by patches, for the most part of an irregular circular shape, of a bright red colour, elevated above the surface, and but slightly itchy. Very numerous on the hands, arms, and chest, they were less so on various other parts; in some places they were crowded together, tended to confluence, and had an appearance very analogous to the efflorescence of slight scarlet fever; in other places, the aspect of the eruption was rather like that of measles; and in others, even more like that of urticaria.

"I have seen this inflammation complicated with an inflammatory affection of the fauces and tonsils, and its disappearance followed by an aggravation of the general symptoms, and, sometimes, even by death. On the chest, the spots occasionally became confluent, and gave rise to patches as broad as the hand, raised above the general level and pretty well defined. The eruption then acquired a dirty pink or rose colour. About the sixth or seventh day, the epidermis cracked, and was thrown off in large flakes on almost all the places where the eruption had existed."

212. *Diagnosis.*—Roseola is distinguished from other exanthemata by negative rather than by positive characters. The diseases with which it is most likely to be confounded are, rubeola, scarlatina, erythema, and urticaria.

The varieties of roseola, the most nearly allied in appearance to rubeola, are roseola infantilis, and roseola æstiva; but particularly the former, which is, probably, frequently mistaken for measles. The diagnostic characters by which it is distinguished from rubeola are, the absence of catarrhal symptoms, the inferior degree of febrile affection, the larger size, more irregular form, and deeper colour of the patches, their progress from the extremities to the trunk of the body, and, above all, the uniformity of the redness as contrasted with the punctiform character of that of rubeola. Moreover, the latter is contagious, and is generally of epidemic origin, which is not the case with roseola. These remarks apply equally to the diagnosis between roseola and scarlatina, substituting for the catarrhal symptoms of rubeola, the angina of scarlatina.

The degree of congestion affecting the skin in roseola is very similar to that of erythema; in both, the patches are irregular, and uniform in tint, but in the former are for the most part smaller than in the latter. Two of the varieties of roseola are scarcely to be distinguished from erythema, as for instance, roseola autumnalis, and roseola annulata. The forms originating in local irritation would more correctly be considered under the order erythema.

From urticaria, the distinction of roseola lies in the light coloured and raised spots and wheals of the former, as contrasted with the uniform redness of the patches of the latter. The local inconvenience, also, is

greater in urticaria, for although in both itching and tingling are prevailing characters, these symptoms are more severe in urticaria, and are accompanied by pricking and stinging.

213. *Causes.*—Roseola is met with in children, in persons with a thin and delicate skin, of weakly and irritable constitution, and particularly in females. In infants, the exciting cause is teething, or intestinal irritation. In adults, it may be occasioned by any causes which disturb the functions and circulation of the skin during its periods of increased activity,—namely, in the summer season. Of this kind are, exposure to a draught of cold air, when the body is heated by exercise; drinking cold water while the body is warm; distressing the stomach with an overload of fruit, indigestible substances, copaiba, &c. Other causes are, gastric and intestinal irritation, and disordered menstruation. The forms called into action by local irritation are obvious in their causes, while those which accompany rheumatic gout or cholera are referrible to some unexplained nervous sympathy between the tissues affected and the skin.

214. *Prognosis.*—Roseola is a slight affection, and one of favourable termination. When it occurs critically in connexion with constitutional disease, it is of good omen, and should be encouraged.

215. *Treatment.*—In the treatment of roseola, the cause, when obvious, should be removed; in the case of children suffering from dentition, this is best effected by scarifying the gums, and exhibiting a dose of castor oil; and where intestinal irritation is in fault, by the hydrargyrum cum cretâ combined with rhubarb, or soda with rhubarb, to regulate the secretions; these measures being assisted by a light and moderate diet. In adults, laxatives and diluents, followed, in weakly persons, by tonics combined with mineral acids, are the appropriate remedies. The varieties accompanying particular diseases call for the treatment applicable to those diseases, as, for instance, colchicum in the case of rheumatism, &c. When disordered menstrual function is the exciting cause, recourse must be had to steel medicines, aloetic aperients, &c. Locally, a gently stimulating lotion will be found of service, such as one containing spirit of horseradish, mustard, rosemary, or tincture of cantharides; or a weakly acid lotion. Baths are also useful, and particularly sea-bathing.

## ERYTHEMA.

Syn. *Inflammatory blush.* *Efflorescence cutanée*, Fran.—  
*Hautröthe*, Germ.—*Dartre erythemoïde*. Alibert.

216. Erythema\* is a superficial inflammation of the skin, which is characterized by a diffused or circumscribed redness occurring in one or several patches of irregular form, and varying from a few lines to several inches in extent. It is noncontagious, occasionally produced by local irritation, but frequently symptomatic of visceral disease. In the commencement of erythema the dermis is a little swollen; the swelling, however, speedily subsides, the redness remaining for a much longer time.

\* Der. ερυθραίνειν, to redden.

Upon the dispersion of the redness, the skin retains for some days a purplish and bluish tint, and the epidermis exfoliates in the form of a furfuraeous and laminated desquamation.

217. There are two degrees of erythema—acute and chronic. Acute erythema presents for our observation eight principal varieties—namely,

Erythema fugax,	Erythema tuberculatum,
„ circinnatum,	„ læve,
„ marginatum,	„ intertrigo,
„ papulatum.	„ nodosum.

These varieties admit of arrangement into three groups, symptomatic, local, and general, or idiopathic. The *symptomatic* kinds are, erythema fugax, generally symptomatic of acute febrile disease; erythema circinnatum, symptomatic both of acute and chronic disorder; erythema marginatum, symptomatic of chronic disease; erythema papulatum, symptomatic of acute and chronic disease, occurring in small slightly raised spots, and resembling pimples; erythema tuberculatum, symptomatic of chronic disease and a broken state of the constitution, more severe than the preceding variety, and giving rise to the development of papular swellings, having the appearance of small tumours. The *local* group comprehends erythema læve, a disease depending on the local condition of the limb, and very appropriately designated by Good, erythema œdematosum, and erythema intertrigo, the consequence of local irritation. The only *general* or *idiopathic* variety is erythema nodosum, which is preceded and accompanied by general febrile symptoms, the latter being relieved by the appearance of the eruption.

## ERYTHEMA FUGAX.

218. Erythema fugax appears in the form of diffused patches of redness, which are variable in depth of colour and extent, and occur for the most part upon the upper regions of the body, as upon the face and neck, the trunk and the arms. The redness of this form of erythema is especially characterized by its evanescent and fleeting disposition, one while vanishing suddenly to reappear at successive periods, another while subsiding on one spot to break forth on several, and again continuing fixed for a short period to disperse slowly and by degrees. It is attended by considerable heat and dryness of the surface, but is unaccompanied by swelling, or by affection of the deeper tissues. At its decline, the epidermis is left rough and furfuraeous from the disturbance to which the formative function of the dermis has been subjected.

Erythema fugax is chiefly important as a symptom of visceral disease, and in some instances it may be regarded as an indication of the long continuance and danger of such diseases. It is particularly noticed in connexion with irritation of the mucous tissues of the body, as of the alimentary mucous membrane, the respiratory membrane, the generative membrane, and the urinary mucous membrane. In my notes for the past three years, I find references to cases in which this form of exanthema has appeared in conjunction with dyspepsia, diarrhœa, hepatitis, bronchitis, hysteria, anomalous uterine irritation, pregnancy, inflammation of the kidneys,

&c. It is also seen in some nervous affections and fevers, and Willan records a fatal case of puerperal fever in which erythema fugax was a conspicuous symptom. This inflammation is most frequently observed in the female sex.

#### ERYTHEMA CIRCINNATUM.

219. Erythema circinnatum appears in the form of small, round, and very slightly raised patches of redness, which enlarge by their circumference, while the redness in the centre fades and disappears. In this manner, a number of rings with broad margins are produced, which run over the whole surface of the affected region, and, as they increase, communicate by their borders, and give rise to a number of irregular and broken bands resembling segments of circles of various magnitude. The central portion of the rings, and the surface which has been left by the erythema, has a yellowish tint, and throws off a furfuraceous desquamation. The duration of erythema circinnatum is greatly dependent upon the nature of the disease with which it is associated; it may be stated generally at from one to three weeks.

I have before me the notes of a case of this form of erythema, associated with acute rheumatism, which occurred in a patient in the Middlesex Hospital, under the care of Dr. Watson. The spots were first developed on the abdomen, and quickly spread from this point as from a centre, until they had occupied with their curves the whole surface of the trunk of the body and of the limbs. The case in other respects presented no characters different from ordinary rheumatism; the symptoms of the latter were neither aggravated nor relieved by its invasion, and it appeared to be developed in connexion with augmented perspiration.

#### ERYTHEMA MARGINATUM.

220. Erythema marginatum is an aggravated form of erythema circinnatum, occurring for the most part in association with chronic visceral disease, and in elderly persons. In this variety there is a greater degree of congestion of the skin than in the preceding; there is a deeper but variable tint of redness which frequently approaches to a purplish hue; the border of the circles is more raised, and slightly papular, and the margin is abrupt and well-defined. Like erythema circinnatum, the present variety presents considerable difference of appearance at different stages of its progress; at one time exhibiting a distinctly annular form, at another, an assemblage of raised and inflamed bands, having more or less of a curved direction. This diversity of appearance of the disease at different stages of its progress enables us to comprehend the apparent dissimilarity in the definition of erythema marginatum, as given by Willan and Bateman, and by Rayer. The latter of these authors describes the early stage of the exanthem, when he remarks that it consists of "circular patches of a livid red, from half an inch to an inch in diameter, the circumference of which is distinctly separated from the healthy skin, raised, prominent, and slightly papular;" while Willan and Bateman, taking the latter stages as their type, describe the marginal ridge as existing only on one side of the patch, the redness diffusing itself gradually in the rest of its circumference. The eruption



may occur upon all parts of the body, but is most frequently seen upon the trunk, particularly in the loins, and on the outer sides of the limbs. Its duration depends on the nature of the disease which it accompanies; it generally extends to several weeks.

#### ERYTHEMA PAPULATUM.

221. Erythema papulatum is characterized by the development of numerous small red spots, of which the largest scarcely exceed the disk of a split pea. On their first eruption, they are of a bright red colour, and slightly raised above the surface of the surrounding skin. The swelling, however, subsides in the course of a few days, but the redness continues for one or two weeks, becoming darker in its tint, and subsequently purplish and livid. In distribution, the spots are irregular, being, in some situations, aggregated into thickly-set patches, while in others they are scattered and dispersed. This variety of erythema occurs most frequently on the face and neck, the chest, the arms, and the backs of the hands. It is met with at all periods of life, particularly in young persons and females, and is usually associated with irritation of the gastro-pulmonary mucous membrane, and sometimes with rheumatism.

#### ERYTHEMA TUBERCULATUM.

222. Erythema tuberculatum is more severe than the preceding variety, both as regards the local affection and constitutional symptoms. Among the red spots of erythema papulatum are developed numerous small elevations of about the size of a split pea. These little tumours subside in the course of a week, but the redness continues for two or three weeks longer, the spots becoming at first purple and then livid. The eruption is frequently ushered in with chills and feverish symptoms, and is accompanied in its course by debility, languor, and considerable constitutional disturbance. This form of erythema is usually met with in persons of debilitated constitution.

#### ERYTHEMA LÆVE.

##### *E. œdematosum.*

223. Erythema læve is an inflammation of the skin associated with œdema, and appearing for the most part in the lower extremities. When, however, the vital powers of the system are reduced, it may be developed in any dependent part of the body. In the lower limbs it commences around the ankles by several small spots, which, by their increase, speedily form a patch of considerable extent. The inflamed surface is smooth, shining, and of a bright red colour; it is more or less swollen from distention of the subcutaneous cellular tissue with serous fluid, and is attended with itching, and by a painful sensation of tension. When left to itself, œdematous erythema may continue without change for several weeks, and may terminate eventually in ulceration or mortification. When it issues in resolution, the swelling subsides, although the œdema may still remain

for some time longer; the brighter hue of redness merges into a purplish and livid tint, and the skin is long before it regains its natural appearance. Moreover, the epidermis desquamates in thin lamellæ.

In young persons, erythema læve is an occasional result of sedentary habits, or of fatiguing exertion in close apartments. Those of a lymphatic temperament are most liable to its attack, and it is not unfrequently observed in chlorosis. In adults it sometimes appears without any more obvious cause than disorder of the digestive system, particularly in persons of intemperate habits. In persons of advanced life, the affection is by no means uncommon, and occurs as a consequence of over-exertion in standing or walking. It is also a frequent complication of the œdema which accompanies varicose veins and anasarca. The local affection is usually accompanied by slight febrile symptoms, and by some degree of constitutional disorder.

#### ERYTHEMA INTERTRIGO.

224. Erythema intertrigo\* is that form of cutaneous inflammation which is induced by chafing the skin, either by the friction of one surface of the integument against another, by the friction or pressure of dress, by the irritation of secretions and discharges flowing over the surface, or by the presence of any cause of irritation whatever, as over-distention of the skin, eruptive affections, &c. This inflammation is attended with little or no swelling, but when it occupies the folds of the skin, whence the perspiratory fluid does not easily escape, or is produced by contact of secretions, the abraded dermis pours out a sero-purulent ichor, which excites a troublesome itching. If the cause of irritation continue for some time, the skin becomes excoriated, and deeply chapped. The cutaneous inflammation produced by pressure on the skin is termed erythema paratrimma.

Erythema intertrigo from the friction of adjoining surfaces is met with between the folds of the skin of infants, as between the buttocks, between the thighs, around the umbilicus, and in the groins, particularly if the parts be moistened by secretions, or unprotected by cleanliness; in the folds of the skin of fat persons, especially in warm weather; upon the face, from the overflow of tears, the saliva, or the secretion of the nose; upon the vulva, the prepuce, and the scrotum; around the anus, and between the toes. A most distressing case of intertrigo in both groins, with condylomata, and profuse, offensive, glairy secretion, occasioned by the irritation of discharges from a carcinomatous uterus, is at present under treatment in the St. Pancras Infirmary. When the disease occurs around the anus, it gives rise to great pain during the action of the bowels, and frequently to spasm of the sphincter. In a case for which I was lately consulted, where the disease affected the prepuce, the aperture of this part was so much contracted and hardened by the cicatrices following upon the chaps, that not only had phymosis resulted, but the urethra was also considerably obstructed.

\* Intertrigo, a chafe-gall.

## ERYTHEMA NODOSUM.

. 225. Erythema nodosum is an inflammation of the skin occurring in oval patches, which vary in size, from a few lines, to two or three inches in diameter, and are situated for the most part on the upper and lower extremities. The oval patches are slightly raised above the surrounding surface, the elevation increasing gradually towards the centre; they are hot and painful; of a bright red colour at their eruption, but change in the course of a few days to a purplish and livid tint, which becomes subsequently yellow and greenish, and has the appearance of an ordinary bruise. The inflammatory activity of the patches increases for several days, during which they are hard and painful; they then become softer to the touch, and by the eighth or tenth day have nearly subsided; terminating by a transient discolouration of the skin, and desquamation of the epidermis. Erythema nodosum is preceded by symptoms of general feverishness, such as headach, dry skin, quick pulse, white tongue, diminished secretions, &c., and disturbance of the digestive organs; these symptoms diminishing on the appearance of the eruption. It has also been observed in connexion with rheumatism. This eruption attacks chiefly young persons and females, and those of a debilitated habit of body.

## ERYTHEMA CHRONICUM.

226. Chronic erythema may occur upon any part of the body, as the consequence of local irritation; and in some situations from constitutional causes. Of the latter kind are those inflamed patches (fiery spots) which occasionally appear upon the face, and remain fixed for a considerable length of time—often for years. These are generally accompanied by some irregular state of the system that requires medication.

As the effect of local causes, chronic erythema not unfrequently breaks out upon the hands and feet; upon the ears and lips; around the nipples of nurses; upon the abdomen, from the distention of the skin caused by pregnancy or ascites; upon the vulva, the prepuce, and the scrotum, and around the anus. The inflammation of the skin in chronic erythema generally proceeds to the formation of chaps and fissures of various extent; the disease is tardy in its course, and obstinate under treatment.

227. *Diagnosis.*—The diagnostic characters of erythema are, redness and heat of skin without swelling, the redness passing by degrees into a purple and livid tint, as the inflammatory excitement subsides. The absence of tumefaction, and distention of the subcutaneous areolar tissue, at once distinguish erythema from erysipelas.

Erythema fugax is distinguished from the other varieties principally by negative characters—namely, by the absence of those peculiarities which mark the rest. The redness is diffused, there is no swelling, the surface is dry and hot, and the inflammation evanescent.

Erythema circinnatum is remarkable for the annular form of its patches; it is distinguished from herpes circinnatus by the absence of vesicles, and from lepra in progress of cure by its general appearance, and by the previous history of the affection.

Erythema marginatum is recognised at an early stage by the annular

form of the patches, and at a later period, by its abrupt and papulated border.

Erythema papulatum may be confounded with some forms of roseola, urticaria, and lichen, but careful examination enables us to distinguish several striking points of difference. Thus, roseola is accompanied by a greater degree of febrile excitement; urticaria is more irregular in its progress, its spots are larger, and the eruption is attended with much itching; while the papulæ of lichen are much smaller, more distinct, less vividly red, and attended with severe and troublesome pruritus. The following distinctions between the spots of erythema papulatum and the pimples of lichen agrius, marked by Willan, are deserving of attention:—

1. "The papulæ" of erythema "are obscure, and presently subside.
2. The redness continues undiminished long after the disappearance of the papulæ.
3. There is less disorder of the constitution, and a less painful sensation in the skin.
4. The erythema papulatum does not terminate by fissures, excoriations, or a leprous state of the skin."

Erythema tuberculatum is at once distinguished by the small tumours developed from the skin, but these are softer and less painful than true tubercles. They are evidently produced by congestion of the skin, and not by deposition, and have no tendency to suppurate or ulcerate.

Erythema læve is characterized by the absence of tumefaction of the inflamed skin, and by its association with œdema of the subcutaneous cellular tissue.

Erythema intertrigo is distinguished from eczema by the absence of vesicles, and by the secretion from the excoriated surfaces being less in quantity than in the latter affection. The cause of intertrigo, again, is immediately obvious. The chaps and fissures of intertrigo are little likely to be mistaken for those of psoriasis.

Erythema nodosum is so clearly characterized, as to offer little room for confounding it with any other eruption. Roseola is that which approaches it most nearly. Erythema nodosum is distinguished from other cutaneous affections by the oval form of the patches, and by their general erythematous characters. It differs from roseola in the greater depth of its inflammation.

Erythema chronicum, in its various situations, may be confounded with chronic eczema and psoriasis, unless the distinguishing characters of these latter—namely, the vesicles and scales—be remembered.

228. *Causes.*—The proximate cause of erythema is congestion of the vascular rete of the dermis, induced by local or by general causes. The varieties coming under each of these heads have been already specified. Erythema may also be induced by disorder of the digestive organs, from the use of improper food, or from taking irritating matters into the stomach, as copaiba. The peculiarities of colour observed in the disease under consideration are explained by reference to the general principles of inflammation. During the period of excitement, the blood is of a bright red colour; it courses rapidly through the part, and the vessels become dilated. After the subsidence of the excitation, the stream of blood flows languidly through the dilated vessels, and assumes the venous character in its course. Hence the bright red tint of the early periods of erythema, and its purplish and livid hue during the subsequent stages.

The exciting causes of erythema læve are, retarded venous circulation through the limb, and interference with the vascular distribution in the skin by œdematous distention of the subcutaneous cellular tissue.

229. *Prognosis.*—Erythema is for the most part a slight affection, and derives its chief importance from the disease with which it may chance to be associated, or from the nature of its cause. The duration of the acute varieties rarely extends to more than two or three weeks. Chronic erythemata speedily yield when the exciting cause is removed, and erythema læve, the most serious of the erythematous inflammations, when it occurs in old persons, is easily controlled by judicious treatment. Willan remarks that he had seen only three cases of erythema tuberculatum, all of which terminated fatally.

230. *Treatment.*—The principles of treatment of erythema resolve themselves into three indications:—1. To restore the altered functions of the system to healthy action. 2. To allay the local irritation. 3. To excite the nerves of the part to resume their normal tone, and the congested vessels their normal dimensions and functions.

The symptomatic varieties of erythema require to be treated through the disease upon which they are dependent. The method of treatment must consequently vary in relation to circumstances. In some instances, the antiphlogistic plan may be required, in others, the irritation of mucous surfaces must be soothed, while in others, again, it may be necessary to excite counter-irritation at a distant part. With the latter view, aloes combined with myrrh will be found a useful remedy, particularly in females.

When the system is reduced, and the powers are enfeebled, tonic remedies are indicated; bitters combined with acids are of great service, together with an appropriate regimen, and the judicious use of exercise.

Sponging the entire surface of the body with warm water and soap every day, or every other day, with occasional warm baths, and drying the skin thoroughly with a rough towel, will also be found useful. To this means may frequently be added, with great advantage, the friction on the unaffected skin of some stimulant spirit or liniment, such as the spiritus armoraciæ, or sinapis, or the following:—

℞  
Ol. croc. tiglli, ℥ss.  
Ol. flor. aurant. ℥v.  
Ol. amygdal. dulc. ℥j.  
Ft. Lin.

The local treatment should, according to circumstances, consist in evaporating lotions, or warm fomentations. In the erythema fugax of the face and neck, cold cream, either alone or with the addition of liquor plumbi, will be found a grateful application.

For erythema læve, the general treatment must consist in the restoration of the secretions, in establishing the regularity of the digestive organs, and in the subsequent exhibition of tonics, with attention to diet. The local treatment demands rest, such a position of the limb as will assist the venous circulation as much as possible; evaporating lotions, or warm fomentations in the acute stage, succeeded by the application of a well-adjusted cotton bandage, as soon as the inflammation has somewhat sub-

sided. Gentle frictions with camphorated spirit may be employed when the local excitement is reduced, and repeated night and morning at each application of a fresh bandage. The erythema accompanying anasarca is immediately relieved by position.

The excoriations of erythema intertrigo require to be kept perfectly clean, and free from the original cause of irritation. They should then be dusted with some absorbent powder, such as Fuller's earth, starch powder, oxide of zinc, &c., and washed with a lotion of chloride of lime. Erythema paratrimma is relieved by astringent applications, or by soap plaster spread upon soft leather.

Erythema nodosum requires antiphlogistic regimen, with brisk purgatives of calomel and colocynth, succeeded by tonics and the mineral acids.

Chronic erythemata are to be managed according to the general principles of treatment above detailed; the excitement of the affected part is to be reduced in the first instance by soothing applications, and then astringents and gentle stimulants are to be used. The *chapping of the hands* may be prevented and relieved by the use of a small quantity of honey, which should be rubbed into the inflamed part each time the hands have been washed, and then wiped off, so as to remove any stickiness that may remain. An ointment of oxide of zinc is also useful for the same purpose.

Erythema of the nipples is best relieved by the application of an ointment of nitrate of silver, containing from five to ten grains to the ounce, the tinctures of kino and catechu, infusion of oak bark or pomegranate, or lotion of chloride of lime.

It is advisable, in most cases, to wean the infant, when the nipples are tender and chapped, but when weaning is objected to or inconvenient, a shield and teat should be applied, without interfering with the nitrate of silver ointment.

For erythemata of the vulva and anus, soothing applications in the first instance, followed by the nitrate of silver ointment, or the astringent remedies mentioned above, constitute the most advisable treatment. In the case of phymosis from erythema, to which I before alluded, I found it necessary to slit up the prepuce.

#### *Cases illustrative of Erythema.*

231. *Erythema læve of the ankle.*—A cook, forty years of age, after a week of unusual exertion, felt languid and ill, and was unable to walk, in consequence of pain and swelling in her right leg. Her pulse was quick; she had a dry, furred tongue, and headach. The affected leg was œdematous, particularly around the ankle. In the latter situation there was a broad and extensive patch of erythema læve. The veins of both limbs were varicose, but she had never before suffered from any affection of the legs. I ordered her to bed, gave her an active purgative with salines, had the leg supported on an inclined plane, the inflamed parts wetted with a layer of lint dipped in a saturnine and alcoholic lotion, and the whole of the lower leg enveloped in oiled silk. By the next morning the redness had diminished very considerably, and the œdema was much reduced. I then moistened the limb with camphorated spirit,

and bandaged it firmly, from the foot upwards, to the lower part of the thigh, re-adjusting the bandage night and morning. From the first day of the application of the bandage she was enabled to walk, but in consequence of again over-exerting herself, and misapplying the bandage, which, after the first few days, I entrusted to herself, it was found necessary to confine her again to bed, where, in a short time, she recovered.

232. *Severe erythema læve of both legs.*—In the autumn of 1841, I was called, with my friend Mr. Coulson, to see a lady of advanced age affected with this disease. She was corpulent, of sedentary habits, had long suffered from œdema, and her present attack had lasted for several weeks, resisting the various modes of treatment which had been pursued. The skin of the entire surface of both legs was of a deep red tint, highly congested, and covered with a rough and exfoliating epidermis. Her tongue was foul, and her general health very much disturbed, so much so, indeed, that she was apprehensive for her life. For the purpose of relieving the congested state of the skin, we recommended free scarification with the point of a lancet, to be followed by fomentations and bandaging. To this, however, she stoutly objected. We then ordered strict attention to position, painting the surface with the tincture of iodine, and carefully adjusted compression by means of strips of soap plaster spread upon leather; the local treatment being assisted by an occasional aperient and tonics. In the course of a few weeks she had entirely recovered.

233. *Erythema læve, issuing in mortification and death.*—An aged woman complained of great pain and uneasiness in the left foot and ankle. There was a diffused patch of redness with slight œdema, occupying the front of the ankle, and the dorsum of the foot. Her tongue was not much altered, but her pulse was quick. I directed her to remain in bed, and to apply fomentations to the limb, at the same time recommending her to the attention of a neighbouring medical friend. In a few days the part became discoloured, and sphacelus commenced, which extended rapidly up the limb as far as the groin. After death, the whole of the arteries of the limb were found to be solidified by calcareous depositions, and some of the smaller vessels were completely obstructed.

## CHAPTER IV.

## EFFUSIVE INFLAMMATION OF THE DERMIS.

234. UNDER the designation "effusive inflammation of the dermis," I propose to consider those inflammations of that structure which are especially characterized by effusion of a serous fluid upon its surface, and the consequent elevation of the epidermis in the form of vesicles or blebs. When the history of these diseases is investigated, they are found to be susceptible of a natural arrangement into two groups, the one marked by diminution of the vital powers of the system, *asthenic*; and the other by increased energy of the nervous and vascular systems, *sthenic*. The former of these groups corresponds with the order Bullæ, the latter with the Vesiculæ of Willan; and the diseases respectively grouped under each are,—

<i>Asthenic.</i>	<i>Sthenic.</i>
Pemphigus.	Herpes.
Rupia.	Eczema.
	Sudamina.

235. The diseases composing the asthenic group agree in the characters of presenting vesicles of large size or bullæ, in the want of tone of the cutaneous tissues, and in a greater or less degree of debility of the vital powers. In these characters, as well as in the existence of bullæ, they are allied with erysipelas, and especially with the phlyctenoid variety. So great, indeed, is this resemblance, that Willan was led into the error of grouping erysipelas with pemphigus, under the order bullæ. Now, however, it is well-known that, the development of bullæ is only an occasional phenomenon of erysipelas, and that, in general characters, that disease corresponds with the inferior class of exanthemata.

236. Willan and his school, upon insufficient grounds, have considered the degrees of pemphigus as different diseases under the names of pemphigus and pompholyx. Such a subdivision is calculated to obscure, most unnecessarily, the characters of an important affection, and to lead to much practical inconvenience. The inaccuracy of this subdivision was perceived by Rayer, and I have followed in his steps in regarding the forms of pompholyx as varieties of pemphigus.

237. Rupia, as it is the last in the asthenic group, establishes, by some of its least important characters, a link of transition to the order vesiculæ. Thus we find that the bullæ of rupia are smaller than those of pemphigus, and, in point of size, are more nearly allied to those of herpes. In pursuance of this observation, Willan placed Rupia in his order Vesiculæ immediately



after Herpes, but it was subsequently restored to its proper position by Biett. Indeed, the correspondence of the general characters of rupia with those of pemphigus are so intimate, that one of its varieties occupies almost a neutral place between the two diseases.

238. In the classification adopted in this work, I have very considerably curtailed the order vesiculæ of Willan. That author had assembled seven diseases under this head, but five of the number must necessarily be rejected in a natural classification. Of these are varicella and vaccinia, which, at the present day, are recognised as variolous affections. Rupia, as we have just seen, is a bullous disease; Miliaria I have treated as a consequence of disorder of the sudoriparous system; and Aptha, his seventh genus, is a disease of the mucous membrane of the mouth, being very probably an eczema of that tissue. Rayer admits six genera into the order vesiculæ; but, for similar reasons to those which have guided me in objecting to Willan's arrangement, I have transferred three to more appropriate places—namely, Sudor miliaria, which originates in disorder of the sudoriparous system; Hydrargyria, which differs in no essential respect, saving its exciting cause, from eczema; and Scabies, which is an inflammation of the dermis, of various character, excited by the presence of parasitic animalcules inhabiting the epidermis.

239. The contents of the large vesicles of the asthenic group of diseases comprised under the definition of this chapter differ somewhat in composition. Both consist of an albuminous fluid,\* transparent at first, but subsequently becoming more or less opaque and puriform. Sometimes the fluid presents a pinkish or purplish hue, in which case the colouring is derived from a portion of the hæmotosin of the blood mingled with the effused fluid. But in the sthenic group, the fluid of the vesicles contains fibrine, and approaches more nearly to liquor sanguinis, while the stratum which lies in contact with the dermis becomes organized and transformed into a false membrane. This false membrane is especially seen in herpes zoster, and in Eczema rubrum and impetiginodes.

## PEMPHIGUS.

Syn. *Pompholyx*. *Pemphix*. *Fièvre bulleuse*, Fran.—*Blasenausschlag*. *Wassenblasen*, Germ.—*Pemphix*. Alibert.

240. Pemphigus\* is an eruption of bullæ of considerable size, appearing upon circular or oval erythematous patches, corresponding in diameter with, or a very little larger than, the bases of the bullæ. The bullæ arise in the course of a few hours; they vary in bulk from that of a split pea to that of one valve of a walnut-shell, and occasionally they increase to the size of a fowl's egg. On their first appearance they contain a transparent limpid or yellowish serum, which, in a short space of time, becomes pinkish, sanguineous, or turbid, and is eventually discharged by the rupture of

\* M. Gruby, of Vienna, who has lately directed attention to the vegetable nature of the crusts of favus, remarks that he has discovered another plant in the bullæ of rupia.

† Der, *πεμφιξ*, a bubble; *πομφολυξ*, a water bubble.

the bulla, or desiccates into a thin, dark-coloured crust. When the bulla bursts, which it generally does in one or two days, an excoriation corresponding with its base remains behind. The disease occurs usually in successive crops; in rare instances, only, simultaneously upon all parts of the body. It may be partial or general, and may be prolonged in duration from a few days to several months, and even years.

241. The numerous varieties\* of pemphigus indicated by different authors may all be embraced in the consideration of its two degrees of inflammatory activity—viz., acute and chronic. The former of these degrees includes the pemphigus vulgaris, pompholyx benignus, and pompholyx solitarius of Willan, while the latter corresponds with the pompholyx diutinus of that author. The pemphigus infantilis of Willan is more properly referrible to rupia escharotica, and his pemphigus contagiosus appears to be based upon insufficient data.

#### PEMPHIGUS ACUTUS.

242. Pemphigus acutus is a rare form of cutaneous disease, attacking children and young persons chiefly, attended by a trifling or moderate degree of constitutional disturbance, and lasting for a short period.† The disease may be partial or general, disseminated or confluent, and it occurs for the most part in successive eruptions.

The constitutional symptoms of acute pemphigus may be slight, not exceeding a trifling degree of listlessness or languor, or they may be severe, consisting of chilliness and rigors, flushes of heat, pains in the head and limbs, thirst, loss of appetite, nausea, sore throat, pain at the epigastrium, quick, frequent pulse, and sometimes delirium. Irritation of the gastro-pulmonary, or of the urethro-sexual mucous membrane, is a frequent complication of the constitutional symptoms.

The milder series of the above detailed symptoms belong to the *pompholyx benignus* of Willan; the same mild constitutional affection, with sickness and languor, accompany his *pompholyx solitarius*.

The local symptoms consist in the appearance, on the second or third day, or at a later period from the commencement of the constitutional disorder, of small red spots, accompanied by itching, and a dry burning sensation. The spots speedily increase in size, and constitute circular erythematous patches, which vary in their degree of redness from a pale to a vivid tint. In the course of a few hours a vesicle rises in the middle of each patch, becomes rapidly distended with a limpid serum, and increases to the size of a hazelnut, or of a large walnut. The bulla is of a circular or oval form, and frequently somewhat flattened at its summit. It usually corresponds very accurately in diameter with the breadth of the erythematous patch, which it then completely conceals; at other times it is somewhat smaller than the patch, and the latter shows around it as a narrow zone. Sometimes again the bulla is much smaller, and appears to be surrounded by a considerable areola. The bullæ generally burst at the end

\* Pemphigus congenitus; p. infantilis; p. simultaneous; p. successivus; p. solitarius; p. confluens; p. acutus; p. chronicus; p. pyreticus; p. apyreticus.

† Rayer relates a remarkable and interesting case of this affection, which was admitted into hospital on the 21st of August, and discharged cured on the 3rd of September.

of a day or two, and expose an excoriated surface, which secretes a serous fluid for a few days longer, and then becomes covered by a thin, yellowish scab, which gradually assumes a brown, and subsequently a black colour. When the rupture of the bullæ does not take place, the limpid and transparent fluid which they contain assumes a yellowish and amber tint; it then becomes turbid and opaque, diminishes in quantity by absorption and evaporation, and at the end of about a week shrivels and dries up, forming a thin, dark-coloured scab. Occasionally the contents of the bullæ become pinkish or purplish, in place of yellowish and turbid; and when the local inflammation has been violent, they may even be mingled with lymph or pus. The scabs fall in the course of three weeks, leaving the skin beneath of a dusky red hue, but perfectly sound. The period of rupture of the bullæ is dependent in a great measure upon situation, and upon the greater thickness or thinness of the epidermis. The duration of the disease is regulated by the manner of its irruption; when the bullæ appear at once, the affection terminates in one or two weeks. When, however, they are developed, as usually happens, at successive periods, the disease is prolonged in a similar ratio, and may extend to three weeks or a month. In the progress of the cutaneous eruption, vesicles are not unfrequently observed upon the mucous membrane of the mouth.

243. In the exceedingly rare variety of pemphigus named by Willan *pompholyx solitarius*, the bulla attains the size of an orange, enlarging very rapidly, and containing several ounces of serous fluid. It is preceded by a disagreeable sensation of tingling and smarting, breaks in about forty-eight hours, and is succeeded by a superficial ulceration. At the end of one or two days after the disappearance of the first bulla, another arises in its vicinity, and pursues the same course with the preceding. In this way five or six bullæ may follow each other successively, extending the duration of the disease to eight or ten days. Willan remarks, with regard to *pompholyx solitarius*, that "it is a disease which rarely occurs, and seems only to affect women. I have seen three cases of it: in one, the left arm was affected; in the other two, the breasts. The excoriations occasioned pain and irritation, with partial hardness in the substance of the breast." Biett met with a chronic variety of this disease.

Pemphigus may be complicated with herpes; indeed, the small bullæ of this disease bear considerable resemblance to the vesicles of herpes phlyctenodes, and the likeness to herpes is still farther increased by the occasional appearance of the smaller bullæ of pemphigus, in the form of rings. It may also be complicated with prurigo; the latter occurs most frequently in old persons, and accompanies the chronic variety.

#### PEMPHIGUS CHRONICUS.

##### *Pompholyx diutinus*. Willan.

244. The chronic form of pemphigus is identical with the *pompholyx diutinus* of Willan. It is of more frequent occurrence than the acute variety, is tedious and painful in its course, always successive in its appearance, and takes place in persons of debilitated constitution, principally of the male sex, and in aged individuals. In its irruption it is either general

or partial, and occasionally it makes its attack at a particular season, for several consecutive years, appearing, for instance, in the autumn or winter, and declining in the spring. Sometimes it lasts continuously for years.\*

The constitutional symptoms are very slight as compared with pemphigus acutus. There is usually some degree of sickness of stomach, headach and lassitude, which precede for several days the appearance of the eruption. And if the latter be severe, the constitutional symptoms are considerably augmented. The cutaneous disease is sometimes associated with aphthæ, with considerable gastro-intestinal irritation, with dysuria, and hæmaturia, and in old persons it not unfrequently terminates fatally, in consequence of its complication with pulmonary disease, or with effusion into the serous cavities.

The local symptoms are ushered in by pricking and smarting of the skin, and by the eruption of a number of small reddish spots, upon which bullæ speedily appear. The bullæ increase in the course of a few hours to the size of a pea or a walnut, and sometimes they attain the magnitude of a fowl's egg. At the end of three or four days, some of the bullæ burst, and discharge their contents, leaving behind them an angry-looking exco-riation of the dermis. In others the serous fluid becomes reddish and turbid, and decreases in quantity until it dries up, forming a dark-coloured scab, covered with the shrivelled epidermis. As one crop disappears, another is produced, so that the disease may be observed in all its stages at the same moment, and may be prolonged for several months, or, with intervals, for years. Occasionally the bullæ are confluent, especially when they make their appearance, which is not frequently the case, on the face.

Chronic pemphigus is sometimes complicated with prurigo, particularly in old persons; this complication excites the most distressing irritation, and frequently causes a fatal termination.

#### PEMPHIGUS CONTAGIOSUS.

245. Willan finds a contagious variety of pemphigus upon the description of an endemic disease, accompanied with bullæ, which raged in Switzerland in 1752, and which is recorded by Dr. Langhans. He also alludes, in support of this variety, to the bullæ of plague, and to those which are sometimes observed in the last stage of typhus fever. The contagious variety is far from being satisfactorily established.

246. *Diagnosis.*—Acute pemphigus, with its bullæ raised upon inflamed bases, bears some resemblance to erysipelas; but the number and small size of the erythematous patches of the former are easily distinguished from the extensively inflamed, the tumefied and painful surfaces presented by erysipelas. From rupia it is distinguished by the small size, the flatness, and the rarity of the bullæ, the ulceration of the skin, and the thick and prominent scabs which characterize rupia.

The duration of the disease, with the exceeding mildness of the constitutional symptoms, are the principal characteristics of the chronic form of pemphigus.

247. *Causes.*—Acute pemphigus attacks children and young persons

\* Dr. Duchesne-Duparc relates that he saw, in St. Louis, a girl, eighteen years of age, of weakly constitution, who had never menstruated, and who had been affected with chronic pemphigus since the age of five years.

chiefly; occasionally it appears as a congenital affection, and is sometimes of hereditary origin. The season during which it is most prevalent is the summer. Its occasional causes are, teething, gastric and intestinal irritation, excess in diet, irritability of system, mental affections, amenorrhœa and dysmenorrhœa. It sometimes results from the constitutional irritation caused by the introduction of the vaccine virus into the system. It has also been observed as a complication of intermittent fever, and several instances are recorded of its occurrence as an epidemic affection. A variety named *pemphigus indicus* is described by Sauvages as a symptom of dysentery.

Chronic pemphigus affects principally aged persons, and adults with debilitated constitutions. It is also, but less frequently, met with in children. It appears usually in the autumn or winter season. The most fruitful causes of chronic pemphigus are those of a depressing kind, such as fatigue, anxiety, intemperate habits, bad food, chronic irritation of the gastro-pulmonary or genito-urinary mucous membrane, amenorrhœa, residence in damp and unhealthy situations, exposure to cold, and starvation, &c. I once saw the disease as a sequela of scarlatina. In those most liable to this affection, there is an habitual dryness of skin and deficiency of cutaneous secretion. Biett remarks that he has frequently found a fatty liver in persons who have died of chronic pemphigus.

248. *Prognosis.*—Pemphigus is dangerous in proportion to its complications, and to the constitutional disturbance of the system. The acute variety is of little importance, but the chronic affection is always obstinate, and sometimes fatal, particularly in old persons. The disease would appear to exert sometimes a beneficial effect upon the system; thus Rayer narrates that he “once saw a man who, after having had several attacks of hæmoptysis, became subject to chronic pemphigus of the legs, and from this period the bleeding from the lungs did not recur. The cure of pemphigus has, in some cases, been observed to be followed by various ill consequences.”

I have seen several cases which have induced me to believe that the eruption of pemphigus is an effort of the system to rid itself of some morbid disposition. In this light I regard Dr. Burne's case (§ 251.) This impression would lead to the adoption of a different mode of treatment to that usually employed—viz., to one of general stimulation of the surface.

249. *Treatment.*—When the febrile symptoms are acute, it may be advantageous to remove a few ounces of blood from the arm, or deplete by means of leeches, following up this treatment with purgatives and antiphlogistic regimen. Such a plan, however, must be pursued guardedly, for the natural tendency of the disease is towards debility, and it will generally be found needful to have early recourse to tonics. Where the febrile symptoms are not active, purgatives and diluents will alone be required.

In the chronic forms of the disease, tonics must be employed at once, the best of them being acids and bark, the latter either in the form of tincture or quinine. A valuable remedy in pemphigus is the hydriodate of potass. In those cases in which the symptoms present obvious indications of diseased action in any of the organs of viscera, such disorder should be made the especial aim of our treatment. Thus, when the

alimentary canal is in a state of irritation, that irritation must be calmed; when the mucous membrane of the bronchia is the seat of morbid action, counter-irritants must be applied to the chest, and such other means adopted as will relieve those symptoms; when the uterine function is disordered, ferruginous remedies must be administered, &c. Restlessness and pain will be quieted with opiates. In an obstinate case of pemphigus, Rayer had recourse to arseniate of soda in small doses.

When there is reason to believe that the eruption is an effort on the part of nature to determine to the surface a morbid disposition, I should strongly recommend the employment of mustard baths to the entire surface of the skin, or a stimulating liniment of some kind, such as that of croton oil, in the proportion of a drachm to an ounce of olive oil, to be well rubbed into the sound parts of the skin. I have pursued this method with great advantage in several general cutaneous disorders which have appeared to me to have a similar origin, and I think that my professional brethren will agree with me that we are warranted in having recourse to such a mode of treatment in cases so generally fatal in their termination as chronic pemphigus, wherein our only mode of practice is to treat symptoms as they arise.

In treating the disease locally, the bullæ should be punctured, and the fluid gently pressed out so as to apply the cuticle to the surface of the dermis. This is done with the view of preventing the spontaneous rupture of the blebs, and the excoriation which necessarily follows. Occasional warm baths will be found useful. Where the bullæ have burst, and excoriations remain, anodyne and emollient fomentations, weakly astringent lotions, or absorbent powders, such as starch powder, may be employed with advantage. In these excoriations, a solution of nitrate of silver, containing two grains of the salt to an ounce of water, will be found the best application to promote cure. Turner's cerate is also a useful remedy.

The diet requires to be regulated by the state of constitution of the patient; where the symptoms are febrile, milk diet is most advisable, but when tonics are indicated, the diet should be generous and nutritious. Wine or spirits form an admirable adjunct to the tonic treatment.

#### *Cases illustrative of Pemphigus.*

250. *Acute Pemphigus*,\* in a man 26 years of age, a rope-mat maker and hawker, a free drinker, under the care of Dr. Roots, in St. Thomas's Hospital, in August, 1829. Eruption of bullæ general over body and face; persistence by successive crops for thirty-two days; aphthous mouth; subacute gastritis induced by the administration of five minims of liquor arsenicalis with tincture of opium, every six hours for three days; restlessness; tremors; death in thirty-two days from the commencement of the attack. No appearances to account for death on post-mortem examination. "Dr. Roots was of opinion that it was caused by continued irritation, arising from the exposure of so large an excoriated surface, in the same manner as after an extensive burn."

\* *Lancet*, vol. i., 1829, 30, p. 129.

251. *Chronic Pemphigus*\* from deficient food, in a woman 37 years of age; under the care of Dr. Burne, in the Westminster Hospital, in April, 1836. Menses regular; bowels confined; persistence of the bullæ for five weeks; sore throat; bullæ cured; bronchitis; diarrhœa; death in ten days from the disappearance of the bullæ, and within seven weeks from the commencement of the attack. On the post-mortem examination “the bronchial ramifications were found full of muco-purulent matter, evidently generated by the inflamed mucous membrane.” “In the abdomen a large track of the mucous lining of the small intestines, particularly the ileum, was inflamed, but no ulceration could be detected. The large intestines were much more slightly affected.”

## RUPIA.

Syn. *Atonic ulcers. Phlyzacia, Alibert.*

252. Rupia† may be regarded as a modification of pemphigus, developed in cachectic and debilitated constitutions. It is characterized by the eruption of small, flattened bullæ, which are few in number and dispersed, and are surrounded by a narrow zone of redness. The bullæ contain, in the first instance, a serous fluid, which speedily becomes purulent or sanguinolent, and concretes and desiccates into dark greenish or blackish, rough crusts. These crusts are variable in point of thickness, and bear some resemblance to the shell of the oyster; whilst others are conical in their form, being thicker in the middle than at the circumference, and not unlike the shell of the limpet. When the crusts fall off, they leave behind them atonic ulcers of a circular form, and various depth, which secrete an abundant ichorous and fœtid fluid, and are indisposed to heal. Rupia is tedious in its progress, and lasts for several weeks or months.

253. The varieties of rupia are founded on the extent and severity of the disease, and upon the thickness and form of the crust; they are three in number—

Rupia simplex.  
 „ prominens.  
 „ escharotica.

### RUPIA SIMPLEX.

254. In rupia simplex, the bullæ arise without preceding inflammation. They are circular in form, flattened on their summit, and equal in diameter to a sixpenny or shilling piece. When first developed they contain a transparent serous fluid, which soon becomes purulent, and gradually concretes and dries up. As the secretion dries, the epidermis around it shrivels, and eventually forms a brownish, wrinkled crust,

\* Lancet, vol. ii., 1835, 36, p. 540.

† Der. *ρυπτος*, sordes.

somewhat like the outside of an oyster-shell. The crust is thickest in the middle, and is continuous at the circumference with the epidermis of the surrounding skin. It is thrown off in a few days, and exposes a superficial ulcer, which may either heal quickly, or continue for several days longer. In the latter case, a new crust is formed by the desiccation of the secretion upon the surface of the ulcer, and a succession of crusts may in this way be produced. When the ulcer heals, its seat is indicated by a redness or lividity of the skin around the cicatrix, which endures for a considerable period. The more frequent situation of *rupia simplex* is upon the legs and lower parts of the body.

#### RUPIA PROMINENS.

255. The prominent *rupia* receives its designation from the projecting and conical form of the crusts which succeed the bullæ. The bullæ are of greater extent than in the simpler variety, and are followed by a troublesome ulcer of considerable depth.

*Rupia prominens* is preceded by several circumscribed patches of erythema, upon which the epidermis is raised slowly, and is distended with a turbid, dark-coloured fluid. The fluid soon becomes concreted, and gradually desiccates into a thick and wrinkled crust of a brownish black colour. While the crust is proceeding towards completion, the erythema slowly extends its limits so as to form a narrow areola around the circumference of the crust. Upon this areola the epidermis is raised, and a fresh secretion of dark-coloured fluid takes place beneath it, which increases the breadth of the crust. In this manner, by successive secretions, extending each time beyond the limits of the first formed scab, the crust is gradually enlarged at its base, and raised more and more above the surface so as to assume the characteristic form of the limpet-shell. From its mode of growth, the crust appears to be formed of concentric layers, projecting one beyond the other like tiles upon a housetop, and when it enlarges in breadth more than in height, it bears a close resemblance to the scaly shell of an oyster. The crust goes on increasing for several days, sometimes for a week, and then becomes stationary. In this state it remains for a variable period, being at one time easily detached, and at another firmly fixed. When detached, either spontaneously or by accident, it is found to conceal an ulcer of considerable depth, and of variable extent, being deep in proportion to the duration of the crust. The ulcer, when thus exposed, sometimes secretes a new crust, which grows thick by successive additions from beneath. At other times—and this is the more frequent course—the ulcer retains its open form, presenting a foul surface, thin, livid, and excavated edges, and an inflamed areola. The ulcer is exceedingly difficult to heal, and after the formation of a cicatrix, leaves a livid and purplish stain, which continues for many months.

This form of *rupia* occurs both on the upper and the lower limbs, but more frequently on the latter. The bullæ are two or three in number, and successive; usually, however, there is only one at its height, while another may be threatening to appear, or on the decline. Sometimes the bullæ, instead of pursuing the tardy course described above, is developed quickly, and is filled with a limpid serum, which subsequently becomes



opaque and purulent. In other instances, again, the inflammatory redness may be dissipated without the appearance of a bulla.

#### RUPIA ESCHAROTICA.

256. *Rupia escharotica*, in some of its characters, bears a close similarity to pemphigus, particularly in the absence of a thick and rugous crust; while in its chief feature, that of ulceration, it evidently belongs to the present class. By some authors it has been described under the name of pemphigus gangrenosa; and the pemphigus infantilis of Willan is identical with this form of rupia.

The disease consists in the formation of bullæ upon somewhat prominent and purplish or livid spots. The bullæ are smaller than in the preceding varieties; they are irregular in form, and flattened at the summit, and they contain a sanguinolent serous fluid, which becomes turbid and dark coloured, or almost black. At this period, the bullæ are surrounded by a purplish areola formed by the circumference of the livid spot upon which they are developed. At a variable period after their distention, the bullæ burst, and leave at their bases unhealthy and excavated ulcers, which increase gradually in breadth and depth. The ulcers are painful, they are frequently covered with sloughs, they secrete a sanious and foetid pus, their borders are thin and inflamed, and they are slow and tedious in their cure. As soon as the ulcers have formed, other bullæ arise, and follow the same course with the preceding, and the disease generally terminates in the death of the patient from excessive and continued irritation. This disease occurs chiefly upon the lower extremities, upon the trunk of the body, more particularly its anterior surface, upon the neck, and upon the scrotum or labia.

*Rupia escharotica* is accompanied by considerable fever, sleeplessness, restlessness, and general disturbance of the nutritive functions.

257. *Diagnosis.*—The only cutaneous diseases with which rupia offers a probability of being confounded are, pemphigus and ecthyma. From the former, it is distinguished by the smaller size and flatness of its bullæ; by the turbid and sanguinolent contents of the bullæ, as contrasted with the generally limpid and transparent fluid of pemphigus; by the thick, rugous, and imbricated crusts; and by the ulcerations of various extent and depth.

Ecthyma differs from rupia in being a pustular disease from its first appearance; by the highly inflamed areola with which the pustules are surrounded; and by the hardness, the small size, the embedded position, and the closer adherence, of the scabs of ecthyma.

258. *Cause.*—*Rupia* occurs in persons of cachectic and debilitated constitution, in those whose strength is reduced by illness, by want of food, want of clothing, want of cleanliness, intemperance, &c. Sometimes it appears as the sequela of scarlatina, rubeola, or variola. Rayer has observed it in association with purpura hæmorrhagica; and in the North, it is occasionally seen as a complication of scabies. *Rupia* is now and then met with in combination with ecthyma, to which it is supposed, by Bateman, Biett, and Plumbe, to bear considerable analogy.

*Rupia escharotica* is usually seen in weakly infants, and in aged per-

sons. In adults, it is sometimes found associated with chronic rheumatism and syphilis.

Mr. Lawrence, in his Lectures on Surgery, remarks—"I think you will hardly see rupia except in those who have had syphilis. I regard it, therefore, as a syphilitic symptom."\* It is almost needless to affirm, that this opinion is unjust, and very far from being warranted by practical observation.

259. *Treatment*.—The most important indication to be fulfilled in the treatment of rupia, relates to the hygienic and dietetic management of the patient. The various exciting causes enumerated as giving origin to the cachectic state of constitution which favours the eruption, should be removed. Warm baths should be employed once or twice a-week. The diet should be generous and nutritious. Tonic medicines should be exhibited; of which wine, bark, the mineral acids, and infusion of wormwood, or hops, are likely to prove the most serviceable.

In treating the disease locally, it is advisable to puncture the bullæ early, and cover them with a piece of dry lint and a light bandage, or with the water dressing. If they exhibit no improvement under this treatment, recourse may be had to strapping with the isinglass plaster, or to various forms of stimulants, such as lime water, lotions of copper, alum, and zinc, nitrate of silver, nitric acid, &c., rest and position being rigidly enforced during the employment of these applications. Rayer recommends dusting the surface of the ulcers with cream of tartar. Bielt speaks strongly in favour of an ointment of the proto-ioduret or deut-ioduret of mercury; the former, of the strength of a scruple to the ounce, and the latter, of twelve or fifteen grains. In a more than usually obstinate case, which came under my care a few years since, in the person of an undertaker's man, I succeeded in effecting the cure of an unhealthy ulcer of rupia upon the arm, by injecting a strong solution of alum beneath the edges, which were undermined to a very considerable extent.

#### *Cases illustrative of Rupia.*

260. *Rupia prominens*,† in a young woman, seventeen years of age, of full habit; under the care of Mr. Bransby Cooper in Guy's Hospital, in April, 1828. The eruption commenced in the beginning of March, in the form of vesicles, which became larger in successive eruptions; the bullæ are situated upon all parts of the body, particularly the lower extremities; they are each surrounded by a slightly inflamed areola, and terminate in conical crusts. The eruption increased for ten weeks, then subsided, and disappeared altogether at the end of thirteen weeks. There was no reason to suspect syphilis in this case, although the treatment consisted of mercury and sarsaparilla.

261. *Rupia prominens*,‡ in a woman twenty-eight years of age, married, and the mother of several children, under the care of Mr. Key, in Guy's Hospital, in August, 1835. Previous health bad, cough with expectoration. The eruption appeared three weeks since, first on legs, then thighs; then arms, then face, preceded by pains, augmented by warmth; the trunk is free; bullæ flattened, containing a milky fluid, surrounded by a slightly inflamed areola; the bullæ terminate in irregular brown

\* Lancet, vol. ii., 1829, 30.

† Lancet, vol. ii., 1827, 28.

‡ Lancet.

crusts, which are conical on the face; an offensive, thin, bloody ichor escapes from beneath the crusts. When these fall, foul, unhealthy ulcers are exposed. She is now labouring under extreme debility; has no rest, from the irritation excited by the disease; she is much emaciated; her pulse is small and quick; the catamenia are suppressed; alimentary mucous membrane easily excited, as shown by the violent action produced by two five-grain doses of mercury with chalk, taken for two nights. No improvement had taken place in her condition at the end of seven weeks from the commencement of the attack. Syphilis was suspected by Sir Astley Cooper to be the cause of this eruption, but without any sufficient reason; indeed, judging from the circumstances of the patient, such a supposition is highly improbable.

## HERPES.

Syn. *Tetter*. *Olophlyctide*, Alibert.—*Dartre*, Fran.—*Flechte*, Germ.

262. Herpes\* is a non-contagious affection of the skin, characterized by the eruption of clusters of globular vesicles upon inflamed patches of an irregular or rounded form, and of small extent. The eruption rarely presents any remarkable degree of severity; it is not usually accompanied by symptoms of constitutional disturbance; and it lasts for a brief period only; rarely longer than two or three weeks. Each vesicle runs a course of about ten days, and terminates either by absorption of its contents, by desiccation without rupture, or by rupture, and the formation of a thin, brownish scab, which speedily falls.

263. The varieties of herpes derive their designation either from the form and arrangement of the clusters, or from the locality of the affection. In reference to their general characters, these varieties admit of a natural division into two groups, a phlyctenoid group, and a circinnate group. The *phlyctenoid group* is characterized by the irregularity of form and distribution of the clusters of which it is composed; it is typified by the variety of herpes phlyctenodes, and embraces all the local forms. The *circinnate group*, on the other hand, is remarkable for the circular arrangement or form of its clusters; hence, the herpes zoster consists of irregular clusters disposed in a circular form around the trunk of the body; herpes circinnatus is characterized by the disposition of individual vesicles in the form of a circle; and herpes iris presents the same peculiarity in the form of concentric circles. In a tabular plan, the varieties may be thus arranged:—

### 1. *Phlyctenoid group*.

H. phlyctenodes,  
 " labilis,  
 " nasalis,  
 " palpebralis,  
 " auricularis,  
 " præputialis,  
 " pudendalis.

### 2. *Circinnate group*.

H. zoster,  
 " circinnatus,  
 " iris.

\* Der. *σπρῆσιν*, to creep.

## HERPES PHLYCTENODES.

Syn. *Herpes miliaris*. *Nirles*. *Olophlyctide miliare*. Alibert.

264. The phlyctenoid variety of herpes presents no regularity of form or of appearance; it may appear upon any part of the cutaneous surface, or upon several regions at the same time, but is most commonly developed upon the upper parts of the body, as the face, neck, and arms, and rarely upon the lower extremities. The vesicles are globular; they vary in size from a mere point to the bulk of a pea, and are produced in dense clusters upon an irregular or rounded patch, rarely larger than the palm of the hand. Frequently there are two or more of these patches. The eruption usually disappears at the end of a week; sometimes, however, it is prolonged by successive eruptions to two, and even to three weeks, the yellowish spots which it leaves behind continuing perceptible for as many months.

The eruption, in herpes phlyctenodes, is preceded by a sense of heat, tingling, and smarting; upon the portion of skin so affected numerous minute red points are shortly perceptible. On the following day, the redness of the patch becomes general, and a great number of small globular vesicles, of various sizes, and distended with a limpid transparent serum, are developed. During the third day the contents of the vesicles become turbid and lactescent, with here and there one which is sanguinolent; and on the fourth day, some few have a sero-purulent appearance. On the third and fourth day, the vesicles begin to shrink, and on the succeeding days to form, with their contained secretion, thin, brownish scabs, which are thrown off by desquamation by the tenth or twelfth day, leaving for some days a redness and livor of surface which disappears only by degrees. The purulent vesicles are not unfrequently followed by small superficial ulcerations.

The local symptoms accompanying the eruption are, itching, pricking and smarting, and an intense burning heat, with frequently a deep-seated pain, all of which symptoms continue for a short time in a mitigated degree, after the subsidence of the eruption. Constitutional symptoms are very rarely present, and, should they exist, are limited to some degree of languor, thirst, loss of appetite, and diminished secretions.

## HERPES LABIALIS.

Syn. *Exanthema labiale*. *Hydroa febrile*. J. Franck.

265. Herpes labialis resembles herpes phlyctenodes in every respect, with the exception of situation. This eruption is preceded by itching, redness, swelling heat, and painful tension of the lips, sometimes affecting the mucous membrane of the prolabium only, at other times the integument alone, and again, both the one and the other conjointly. The redness extends to a variable distance around the mouth, sometimes reaching to the nose, and less frequently to the cheeks and chin. On the second day from the appearance of the redness, and sometimes earlier, several crops of small round vesicles, five or six in number, are developed upon the inflamed surface. Some of the vesicles, by their confluence, unite to form small

cellular bullæ, of the size of a split pea. On the third and fourth days, the serous contents of the vesicles become turbid and lactescent, and subsequently sero-purulent. On the fifth or sixth day, a brownish crust is formed upon the affected surface, by the desiccation of the vesicles and their contents; and on the eighth or tenth the crust falls. The formation of a crust may frequently be prevented, by carefully opening the vesicles as soon as formed, and by the application of a weak solution of sulphate of zinc in cold water. When the crust is interfered with during its formation, and removed, a hardened scab is produced, which remains adherent for a much longer period than the natural crust. Herpes labialis is sometimes associated with aphthæ of the mouth.

#### HERPES PALPEBRALIS, NASALIS, ET AURICULARIS.

266. An eruption of globular vesicles identical with those of herpes labialis is sometimes developed upon the upper eyelid, along the borders of the alæ of the nose, or in the concha of the ear, in association with irritation or inflammation of the mucous membranes of the eye, the nares, and the external ear. The progress of the eruption is precisely similar to that of the preceding affection.

#### HERPES PRÆPUTIALIS.

267. Like herpes labialis, the present variety may affect either the mucous or cutaneous surface alone, or both conjointly. The disease in this situation appears under the form of one or more red and well-defined patches of about the size of a sixpence, upon which the globular vesicles of herpes are developed. On the cutaneous surface the vesicles pass mildly through their course, the fluid is frequently absorbed, either in its serous or sero-purulent state, or they form thin, brownish scabs, which desquamate at the end of a week or ten days.

On the mucous membrane the inflammation accompanying the eruption is somewhat more severe. The vesicles assume a larger size, become speedily lactescent and sero-purulent, and terminate in thin, brownish scabs. These are not unfrequently rubbed off previously to their natural desquamation, and leave behind them small excoriated surfaces, which might, by inattention, be mistaken for chancres.

The symptoms accompanying both of these forms of eruption are, heat, itching, and often a pricking sensation. The disease is dependent for its cause upon friction with the dress in persons of great susceptibility of skin; contact with discharges from the vagina; neglect of habits of cleanliness; and irritation of the genito-urinary mucous membrane. Herpes præputialis sometimes becomes chronic, and is then very difficult of cure.

In its excoriated state, as I have before remarked, this eruption offers some risk of being mistaken for chancre. But the superficial ulceration of herpes, the occurrence usually of several small ulcerations in a cluster, and the uniform level of the exposed surface, are characters which contrast very strongly with the chronic progress of chancre, its thickened

and raised edges, and the whitish appearance of its surface, produced by a false membrane.

#### HERPES PUDENDALIS.

268. This affection presents all the characters of the preceding varieties, the vesicles appearing upon the integument and mucous membrane of the labia majora, or upon the internal surface of the vulva. In these situations, the eruption is often rendered obstinate by the continuance of irritation kept up by the secretions from the vagina.

#### 2. Circinnate Group.

#### HERPES ZOSTER.

Syn. *Zona*. *Zoster*. *Cingulum*. *Ignis sacer*. *Zona ignea*. *Zona herpetica*.  
*Shingles*.

269. Herpes zoster, or shingles, is especially characterized by the arrangement of the inflamed patches with their clustered vesicles, in the form of a half-zone,\* which extends around some part of the trunk of the body, from the middle line in front to the middle line behind. The eruption usually occurs at about the middle of the trunk. When it is developed higher up, the patches take their course across the shoulder, and are frequently prolonged along the arm; and when it is situated in the lumbar region, they occasionally extend to the thigh and leg. In rare instances, the eruption is met with forming a-half collar to the neck, or a demizone around the face or head; it has also been observed upon one side of the scrotum, or penis. Sometimes it happens that the patches assume a longitudinal direction on the trunk, and this is their customary course on the limbs. Bateman noticed this arrangement as a variety, under the name of *herpes proserpens*. Herpes zoster occurs indiscriminately on either side of the body; by some authors, it is stated that the eruption appears, for the most part, upon the right side, while others contend that the left is the most frequently affected; my own experience corresponds with the latter statement. It is an acute disease, lasting from one, to three or four weeks.

Herpes zoster, in the manner and course of its eruption, is identical with the typical form, herpes phlyctenodes, but more severe in its symptoms. The patches by which it appears are of a vivid red colour, commencing usually at both extremities of the demizone, and proceeding outwards by successive eruptions, until they constitute, by their approximation, an irregular line. The first formed patches are larger than those which succeed. The patches are perfectly distinct from each other, being separated, to a greater or less extent, by interstices of sound integument. Shortly after the appearance of each patch, a number of small

\* An unfounded notion was prevalent amongst the older physicians, that if the zone encircled the entire body, the case would terminate fatally. Pliny, amongst others, refers to this prejudice.

white and glistening prominences are seen upon its surface, which speedily assume the form of vesicles, and the latter go on increasing in size, until, at the end of three or four days, they attain the magnitude of small peas. The vesicles are developed in groups, consisting of considerable numbers upon each patch, and in some situations they become confluent, and resemble small bullæ. On their first eruption they are filled with transparent serum, which becomes turbid on the second and third day, and subsequently sero-purulent, or purulent in some, and of a dark brown colour, or blackish tint, in others. On the fourth or fifth day, the vesicles begin to collapse and fade; they look wrinkled, and, during the following two days, dry up, with their contents, into small scabs, of a dark brown colour, which fall on the tenth or twelfth day, leaving behind them a redness of the skin, which slowly disappears. The vesicles are not unfrequently intermingled with true pustules.

This disease is greatly modified, as regards its termination, by the state of health and vigour of the patient. In young and healthy persons the contents of many of the vesicles are absorbed on the fifth or sixth day, and the affection terminates by desquamation. In weakly and old persons, on the contrary, the sero-pustules burst, and produce painful excoriations, or ulcerations, which are often long in healing. These unpleasant consequences are most frequent on the dorsal region of the trunk, from the friction and pressure to which the vesicles are subject in this situation during decubitus. Sometimes, also, in old persons, the disease terminates in gangrene of the integument.

The symptoms accompanying herpes zoster are, a pungent and burning heat at the commencement of the vesicular eruption, and a continuance of the pain, to a greater or less extent, throughout the course of the disease. Its invasion is not unfrequently indicated by acute pains, which seem to shoot through the chest and epigastrium; and the close of the affection is sometimes marked by severe nervous pains, which continue for several weeks, or even months. The constitutional symptoms are for the most part slight, consisting of some degree of feverishness, quickened pulse, and gastro-intestinal irritation. In some cases, the latter symptom is remarkable for its severity, and, in rare instances, the eruption is preceded by a rigor.

#### HERPES CIRCINNATUS.

Syn. *Vesicular ringworm.*

270. Herpes circinnatus is an eruption of vesicles, of small size and globular shape, upon patches of inflamed skin, which assume the form of a circular ring. The circles are of various size and breadth, rarely exceeding in diameter the palm of the hand, and they enclose an area of unaffected skin. They are of a vivid red colour, and the vesicles by which they are covered are exceedingly numerous and sometimes confluent. The patches run through their course in eight or ten days, but when the disease assumes a chronic character, and the circles are successive in their eruption, it may be prolonged for several weeks. This eruption appears upon all parts of the body, but is most frequently developed on the face, the neck, the breast, and the upper extremities.

Herpes circinnatus commences in the form of small circular or oval patches of vivid redness, which become pale in the centre while they increase in size by the circumference. The vesicles are developed near the outer margin of the patch; they are small, and globular, and they run through the usual course of herpetic vesicles, becoming, at first, turbid and milky, and then desiccating into small thin scabs, which fall off in eight or ten days, the denuded surface of the skin retaining a red colour, which gradually subsides. The symptoms accompanying the eruption are, a slight pricking and smarting sensation, with some degree of itching.

When the attack is particularly slight, the vesicles are very small, and their contents are disposed of by absorption, the eruption in this case terminating by furfuraceous desquamation. In other cases, the central area is not wholly free from the influence of the inflammatory action, but desquamates with the circumferential ring.

#### HERPES IRIS.

Syn. *Rainbow ringworm.*

271. Herpes iris is a very remarkable and rare variety of cutaneous affection. It is characterized by the eruption of small clusters of vesicles, which are encircled by four or five rings, differing in shade of red, and supporting vesicles of great minuteness. The first ring from the centre is of a reddish brown colour; the second is lighter in tint and somewhat yellowish; the third is of a vivid red colour, and the fourth of a pinkish hue, subsiding gradually into the tint of the surrounding skin. When there are other circles, they present each a different shade of red, and the entire disk is about equal in size to the circumference of a shilling. The smaller vesicles are usually found only on the second and third rings; occasionally, however, they may be present on all. The eruption may appear upon all parts of the body, but is most frequent on the face and hands, and around the joints. Its duration extends to ten or twelve days.

Herpes iris commences in the form of small patches of general redness, which speedily assume the appearance of concentric circles. In the course of the second day, a vesicle is developed in the centre of each patch, and around this other vesicles shortly become clustered. On the third and fourth days, vesicles begin to be developed on the circular rings. The fluid contained in the central vesicle is at first transparent; on the third and fourth days it becomes turbid, the same change taking place at the same time in the other vesicles. The eruption usually terminates by the absorption of the fluid contained in the vesicles, and the formation of a slight desquamation. Sometimes the vesicles burst, and give rise to the production of small thin, brownish scabs, which fall at the end of ten or twelve days.

This affection gives rise to no constitutional disturbance, and to little local inconvenience. It is ordinarily limited to a few disks, but sometimes these are so numerous as to be distributed more or less closely over the entire body.

272. *Diagnosis.*—The globular form of the vesicles, their size, their number, their clustered arrangement, and the redness and isolation of the patches, are the chief pathognomic characters of herpes, and serve to distinguish it from every other affection. The vesicles are too small to be



mistaken for the bullæ of pemphigus, and they are larger and more prominent than the vesicles of eczema.

*Herpes phlyctenodes* and *zoster* are distinguished only by the arrangement of the inflamed patches. In the former they are distributed upon various parts of the body at the same time, while in the latter they are limited to a region. The vesicles of herpes zoster are larger than those of the other varieties of this genus, they are also more serious in their consequences.

*Herpes circinnatus*, from the peculiarity of its form, is liable to be confounded with erythema circinnatum, with lepra in its decline, and with favus confertus. From the first it is not easily distinguished, unless one or more of its vesicles remain; from the second, the absence of a hard and elevated border, the absence of similar patches on other parts of the body, the presence of, at least, one or two herpetic vesicles, and the speedy decline of the redness, serve to establish a difference. Favus confertus is a peculiar disease of the hair follicles, of slow progress, and covered by large yellowish friable crusts; while, in the circinnate form of herpes, the eruption is vesicular, the disease of short duration, and the scabs thin and of small size. Moreover, favus affects, chiefly, the scalp, and destroys the hair; while, in herpes circinnatus of the same region, the hair is not injured.

*Herpes iris* bears resemblance to one cutaneous affection only, and that is, a variety of roseola with concentric rings. The diagnosis between the two diseases is, however, at once rendered evident, by the larger size of the disks in roseola, and by the total absence of vesicles or their traces.

273. *Causes.*—Herpes occurs, for the most part, in young persons and females, and particularly in those who possess a delicate and irritable skin. The seasons in which the disease is most prevalent are, the spring, the summer, and the autumn. Herpes is very commonly dependent upon some disturbance of the digestive functions, or upon irritation of the respiratory mucous membrane, and may frequently be regarded as an effort of the system to eliminate some disposition to visceral disease. The ordinary exciting causes of the affection are, irregularities in diet, exposure to cold while the body is heated, coldness and dampness of the atmosphere, contact of local irritants, fatigue, moral emotions of a depressing kind, &c.

*Herpes labialis* not unfrequently results from the influence of cold, as in the transition from a warm atmosphere to a cold sharp wind. It is also associated with gastro-pulmonary irritation, and frequently appears as a critical sequela of fevers, catarrhs, and some affections of the viscera.

*Herpes zoster* frequently attacks adults and old persons, and in the latter is often a painful and distressing disease. In adults it has been observed to be more common in the male than in the female sex. The seasons most favourable to its appearance are the summer and autumn. Sometimes the affection would appear to be hereditary, and in certain seasons it has attacked so many persons as to give rise to the suspicion of its being an epidemic disorder. In rare instances, it has been observed as a critical eruption.

*Herpes circinnatus* is sometimes seen to attack several members of the same family at the same time, or consecutively. This observation, however, merely points to a similarity of exciting cause, since various experiments have shown the impossibility of propagating the eruption by inoculation.

274. *Prognosis.*—Herpes, in young persons and in the adult, is a mild disease, and is important only in relation to the visceral affections with

which it is concomitant, and of which it is frequently symptomatic; in old persons, however, it is serious, from the disposition to gangrene in the inflamed skin. As an illustration of the occurrence of this affection in a symptomatic form, I have preserved the notes of a case of partial herpes zoster, in which the eruption appeared upon the left shoulder, over the infraspinatus fossa, in a young lady, sixteen years of age, by whom I was consulted in the spring of 1840. Upon examining her chest, I found it to be small and contracted, and her respiration weakly, but she had no cough. I explained to her mother that the eruption was of little consequence, otherwise than as indication of susceptible lungs; that she must use the greatest precaution in protecting her from the influence of cold; and I gave her such hygienic instructions as I deemed best for the purpose of carrying out that object, ordering the frequent application of a counter-irritant to the chest and trunk, and the use of flannels next the skin. I heard no more of this young lady until the January following, when I visited her on her death-bed, at her particular request. She had fallen a victim to phthisis, and died a few days after my visit.

275. *Treatment.*—The treatment of herpes should be mildly antiphlogistic, and should consist of gentle laxatives, diaphoretics, and diluents, unless some visceral disorder be suspected, and call for especial attention. If the febrile symptoms run high, bleeding, either generally or locally, may be practised with advantage, more particularly in herpes zoster, in which this more active treatment is most likely to be demanded. The local management requires the aid of fomentations and emollients to relieve the local pain, unless contra-indicated by position or other circumstances. In most instances, a simple ointment will be found preferable to fomentations, especially when the vesicles are seated on parts of the body liable to friction or pressure. In the latter case, where some of the vesicles have burst, and the surface is bedewed with moisture, it may be dusted with starch powder with considerable advantage. When the eruption is evidently symptomatic, the indication offered by nature of the advantage of a counter-irritant should be carefully followed up. Herpes, on its subsidence, sometimes leaves behind it intense pains, which can alone be combated by sedatives. These after-pains are particularly characteristic of herpes zoster.

*Herpes labialis* is too slight to require remedial treatment; if, however, the heat, tension, and itching, are productive of much uneasiness, they may be relieved by a weak lotion of acetate of lead, or sulphate of zinc, or by the following application:—

℞  
 Unguenti flor. Sambuci, ℥j.  
 Liquoris plumbi, ℥j.  
 M. bene.

The course of these vesicles, at an early stage, may frequently be arrested by the above lotions; when, however, the vesicles have formed, they may still be checked by puncturing them with a needle, and by inserting, for an instant, a fine point of nitrate of silver into the puncture.

The other local forms of herpes, including herpes præputialis, may be treated upon the principle recommended for herpes labialis.

In *herpes zoster*, when the patient is weakly or aged, tonic remedies

and a generous diet will be required. He should be careful not to lie on the affected side, lest the vesicles be ruptured, and troublesome ulcerations or gangrenous sores produced.

When the vesicles are succeeded by excoriations or ulcerations, the ointment recommended for herpes labialis, spread upon lint, will be found a useful application. If the excoriations exhibit a tendency to gangrene, an ointment of nitrate of silver, containing ten grains of the salt to an ounce of simple cerate, should be used. And if the disease be accompanied by much pain, an ointment of opium, in the proportion of half a drachm of the watery extract to an ounce of simple cerate, will be found an advantageous remedy. My friend, Mr. Lay, who suffered severely from the itching attendant upon this disorder, while engaged in Beechey's expedition, had recourse to a moist cloth, which he found of great service in quelling that symptom when augmented so as to become unbearable by the warmth of bed. Lotions of sulphate of zinc, of super-sulphate of alumina, and sub-borate of soda, are recommended by Bateman for the same purpose.

The ectrotic treatment is applicable to herpes zoster, as well as to herpes labialis, and the other varieties of the eruption. The vesicles should be carefully punctured with a needle, and the sharp point of a pencil of nitrate of silver introduced, for an instant, into the opening. By this means the progress of the vesicles may be checked, and the cure brought more speedily about than by leaving the eruption to its course. In pursuing this plan, the possibility of some visceral disease should not be lost sight of; and as the cutaneous irritation will be diminished by the remedy, an artificial counter-irritant should be adopted in its place.

If any tardiness be apparent in the development of the eruption, the treatment suggested by Mr. Plumbe should be adopted—namely, the application of a strip of blistering plaster on the sound skin, in the situation where the vesicles are likely to appear, or immediately adjoining those which are already produced. This application has not only the effect of checking the extension of the disease, “but of producing a shrivelling of the vesicles already formed, and cutting short its progress altogether; avoiding at once its tediousness and all the pain attending it.” Care must be taken not to apply the blister over the vesicles, for this is liable to give rise to sloughing of the dermis occupied by the vesicles. Moreover, Mr. Plumbe has remarked that blisters do not rise upon the inflamed patch of herpes.

*Herpes circinnatus* and *iris* require no especial remedies; they should be treated upon the general principles above indicated. When the circinnate variety becomes chronic, Gibert recommends the following ointment:—

℞  
Sulphuret of lime, ℥j.  
Camphor in powder, gr. xv.  
Axungia, ℥j.  
M.

If this ointment should fail, a blister will often succeed in putting a stop to the eruption.

*Cases illustrative of Herpes.*

276. *Herpes zoster, congenital*,\* a lad, nine years of age, had a severe attack, occupying the right half of the trunk, in April, 1827. The boy's grandfather had suffered from the affection several times. One of his uncles had the disease when a boy.

277. *Herpes præputialis with irritation of the mucous membrane of the bladder and urethra*.—Mr. B., a gentleman of about thirty years of age, who had resided for the greater part of his life in India, applied to me during the summer of 1841, in consequence of a suspicion that he was affected with stricture. I found, however, that this was not the case, but that the mucous membrane of the urethra was exceedingly irritable. At one of his visits he showed me an eruption of vesicles of herpes upon the prepuce, at the same time telling me that he was liable to such attacks occasionally, but that they subsided in a few days, and were productive of temporary inconvenience only. He was in the habit of applying to them, when they appeared, a simple unguent, consisting of elder flower ointment, and oxide of zinc, prescribed for him by Mr. Vincent.

## ECZEMA.

Syn. *Humid tetter, or scall. Dartre squameuse humide*, Alibert.

278. Eczema† is a non-contagious affection of the skin, characterized by the eruption of minute vesicles in great numbers, and frequently confluent, upon a surface of irregular form, and usually of considerable extent. The vesicles are so closely aggregated in some situations, as to give rise to one continuous vesicle of great breadth. These larger vesicles, when laid open, appear to be cellular in their structure; the cellular disposition obviously depending upon the juxta-position of the numerous small vesicles of which they are composed. The vesicles of eczema terminate by absorption of the fluid which they contain, or by rupture and moist excoriations, succeeded by thin scales, and furfuraceous desquamation. The eruption is generally successive, and variable in its period of duration. It is not limited to the skin only, but frequently extends to the neighbouring mucous membrane. It is often developed on the scalp, and upon the hair-bearing parts of the body.

279. The varieties assumed by eczema, in its development upon the cutaneous surface, are divisible into two groups, *acute* and *chronic*. In the former are arranged four principal varieties, and in the latter one typical form. Besides these, several local forms of the disease, either from their severity, or from certain peculiarities which they present, deserve distinct consideration, and may be assembled into a third group, the members of that group being susceptible of assuming, as circumstances may direct, either the acute or the chronic type. The varieties of eczema, therefore, are,—

\* Medical Gazette, vol. ii. p. 632.

† Der. *εκζέμα*, to boil out.

- |   |  |
|---|--|
| <p>1. <i>Acute.</i><br/> E. simplex.<br/> ,, rubrum.<br/> ,, mercuriale.<br/> ,, impetiginodes.</p> | <p>2. <i>Chronic.</i><br/> E. chronicum.</p> |
|---|--|

3. *Local forms.*

- E. capitis.  
,, faciei.  
,, auriculare.  
,, mamillare.  
,, umbilicale.  
,, perineale.

ECZEMA SIMPLEX.

280. In this, the most simple form of eczema, the vesicles, about the size of the head of a small pin, exceedingly numerous, and clustered into confluent patches of various extent, are accompanied by very trifling redness and inflammation of the skin.

The eruption makes its appearance suddenly, without premonitory symptoms, and the vesicles are distended with a transparent limpid serum, which gradually becomes turbid, and then milky. The fluid is then by degrees absorbed, and the epidermis shrivels into an extremely thin pellicle, which is thrown off by desquamation. When, however, the vesicles are broken, as frequently occurs, the scale which follows is thicker and more adherent, and remains attached to the surface for a longer period. The affection is generally prolonged by successive eruptions for two or three, and sometimes for a greater number of weeks, but is so slight as to leave behind it no trace of the previous existence of morbid action. It is accompanied by itching, which is sometimes considerable and troublesome, but presents no constitutional symptoms. Rayer remarks that the vesicles "usually correspond with the minute projections whence the hairs issue, and which may be very distinctly seen by examining the insides of the arms and thighs with attention."

Eczema is sometimes general, but more frequently local in its eruption. The parts of the body most liable to its attack are the arms and fore-arms, and particularly the hands, and between the fingers. Rayer alludes to a variety of eczema simplex described by his pupil, Dr. Levain. This variety is "distinguished by clustered patches of vesicles, the dimensions of which vary from those of a sovereign to those of a two-sovereign piece." "The clusters are scattered over the skin, which only appears red in the places affected. On the red patches, covered with vesicles, the cuticle may sometimes be raised and removed in a single piece." From this description, it would seem that the eruption bears the same relation to eczema simplex that herpes phlyctenodes does to the local forms of that eruption.

I have observed another variety, in which the vesicles were conical in form, and resembled those of scabies. They were dispersed singly and in small number over the hands and arms, and were each succeeded by a

thin scale. Their elected seat was the thinly covered skin between the fingers, on the flexures of the wrists, and the anterior surface of the forearm and elbow-joint.

#### ECZEMA RUBRUM.

281. Eczema rubrum, or inflammatory eczema, is distinguished from the preceding variety by the development of the vesicles upon a surface which is tense, swollen, and of a vivid red colour. The eruption appears, in the first instance, in the form of minute white points, dispersed in great numbers over the inflamed surface. These speedily increase in size, and become small, transparent vesicles, filled with limpid serum, and surrounded by an areola of still deeper redness. When the disease is disposed to terminate favourably, the redness subsides at the end of a few days or of a week, the fluid contained within the vesicles is absorbed, and their epidermic parietes shrivel and dry up, forming thin scales, which are thrown off by desquamation, and leaving behind them a redness of the skin, which continues for a considerable time.

When, however, the affection is more severe, the inflammation augments instead of diminishing, and the vesicles are produced in so great number as to become confluent. Their contents, at first limpid, become turbid and milky; they burst almost as soon as formed, and leave behind them inflamed and excoriated surfaces, which pour out an abundant secretion. The ichor from the inflamed surfaces is profuse and irritating, and serves to increase the extent of the excoriations. The exposed dermis is of a bright crimson colour, and is covered here and there with flakes of a whitish membranous film. Some of these crimson excoriations are bordered by an abrupt margin of thick and softened epidermis. When the discharge diminishes in quantity, it concretes into the form of softish lamellæ, which harden by exposure to the atmosphere, and constitute scabs of various extent and thickness. The more severe degrees of eczema rubrum endure for two or three weeks, and if the causes continue which gave rise to the disease in the first instance, or if any source of irritation still remain, it may assume the chronic form.

#### ECZEMA MERCURIALE.

##### Syn. *Hydrargyria*.

282. Eczema mercuriale offers some points of dissimilarity from eczema rubrum, but not sufficient, in my opinion, to warrant its consideration as a separate genus of vesicular disease, under the name assigned to it by Dr. Alley—*hydrargyria*. At the present day the eruption is rare, but formerly, when mercury was a fashionable remedy, its occurrence was more frequent. Dr. Alley describes three varieties, or rather degrees, of the affection, namely, *hydrargyria mitis*, *febrilis*, and *maligna*.

Eczema mercuriale is characterized by a red efflorescence occurring in patches of variable size, and surmounted by transparent vesicles of extreme minuteness. In the mild form of the affection, the vesicles are not perceived until the surface is examined with care, but in the more severe

degrees the vesicles increase in size, and their transparent contents become opaque and purulent. In some instances, particularly where febrile symptoms are present, the efflorescence occupies a large extent of surface, sometimes the entire body, and assumes the appearance of rubeola; at a later period, the small semilunar spots coalesce, and form patches of larger size. The more usual seat of the eruption is the trunk of the body, or the thin skin of the pudendal region; sometimes it appears first on the backs of the hands, and more rarely on the face. The eruption is preceded by heat and smarting of the skin, and its progress is remarkable for excessive heat, with smarting and pruritus. When the vesicles are very minute, they dry up without giving rise to secondary inconvenience; but when they occur in folds of the skin, or are larger in size, they are usually broken, and the abraded dermis pours out an acrid and offensive\* ichor in considerable quantity. When the eruption declines—an event that usually happens at about the tenth or twelfth day in the mild form of the disease, and at a variable period later in the severe forms,—the epidermis is thrown off by repeated desquamation, leaving the skin of a deeply red colour for some time. Sometimes at the close of the eruption the disease concentrates itself on a particular spot, and remains obstinately fixed for weeks, or even months. Of this kind is a case lately under my care, in which the congestion and epidermic exfoliation were limited to the palms of the hands.

Mercurial eczema, in its mildest form, may appear without constitutional symptoms, or with but trifling gastro-intestinal disturbance and feverishness. But in a more advanced degree, in that for instance, named *febrilis* by Dr. Alley, the invasion is marked by rigors, nausea, pains in the head, diminished secretions, and other symptoms of severe constitutional disturbance. The fauces are always more or less inflamed in these cases, and the inflammation of the mucous membrane often extends to the bronchial tubes. In the most severe form of the affection—namely, in that produced by a continuance in the use of mercury after the eruption has appeared—the hydrargyria maligna of Dr. Alley,—the face is enormously swollen, the eyelids closed, the throat tumefied and painful, the colour of the efflorescence of a deep purple colour, and all the symptoms aggravated. The epidermic exfoliation continues for a greater length of time, it is thrown off in large flakes, and the nails are sometimes cast with the epidermis.

Persons who have once suffered from eczema mercuriale are occasionally subject to a second attack.

The mercurial eruption is sometimes the consequence of a long continued use of mercury, but occasionally it would seem to depend on a peculiar idiosyncrasy of the individual, unless we suppose the eyes of the observers to have become so obscured by a favourite hypothesis, as to see nothing but hydrargyria in every inflammatory eczema, developed after taking a dose of medicine containing a particle of mercury. This idea is naturally excited when we read of eczema mercuriale following the exhibition of a single blue pill, although I am quite ready to admit that mercury upon some constitutions possesses remarkable powers, and I have seen a man salivated from stopping his tooth with the metallic alloy commonly used for that purpose. At other times, mercurial inunction, or a mercurial atmosphere, is the cause of the eczematous eruption. Dr. Alley conceives that

\* Spens compares it to putrid fish.

in his cases the effect of the mercurial ointment may have been much heightened by its admixture with camphor, the formula consisting of two scruples of the latter to an ounce of the unguent.

The treatment of *eczema mercuriale* consists in the removal of the cause, and the pursuance of the general plan laid down for the management of the milder forms of *eczema simplex*.

#### ECZEMA IMPETIGINODES.

283. *Eczema impetiginodes* is a severe degree of *eczema rubrum*; in some instances it presents all the characters of the latter at the outset, and subsequently assumes appearances peculiar to itself. At other times the disease breaks forth in all its severity on its first invasion. M. Devergie remarks that *eczema* takes on the impetiginous character in the proportion of thirty-five per cent.

In *eczema impetiginodes* the skin is highly inflamed and swollen, the vesicles, which are in many places aggregated into confluent clusters, often communicate with each other, and form a continuous vesicle of some extent. The contents of the vesicles, which are at first limpid, speedily become turbid and puriform, and in a short space of time are effused upon the surface by the rupture of the epidermis. The purulent secretion after its effusion, concretes upon the broken surface, and produces yellowish, lamellated crusts, often of considerable extent. When the crusts are rubbed off, or removed, the exposed surface of the dermis presents a vivid crimson colour, partly concealed here and there by films of whitish lymph, and secreting an abundant ichorous fluid, having a reddish tinge. This secretion hardens, if the inflamed surface be exposed to the influence of the atmosphere, into a thin, dark-coloured scab, which remains, unless disturbed by accident or design, until the excoriated surface is healed.

The eruption of *eczema impetiginodes*, as of the milder forms of *eczema*, is successive; fresh crops of pustular vesicles are produced as the first decline, and in this way the disease is prolonged for two, three, or more weeks, especially if irritated by the employment of injudicious remedies. In the latter case the affection often lapses into the chronic form of *eczema*.

*Eczema impetiginodes* is for the most part local in its attack, confining itself to a single region of the body, and that of limited extent. The forearms and hands are the frequent seat of the disease, and the face is not uncommonly affected. In these cases, there are no constitutional symptoms. But when the disease is general in its eruption, or when children are the subjects of the partial affection in any degree of severity, the ordinary constitutional symptoms accompanying inflammation are developed—viz., quick circulation, excited nervous system, disordered digestive system, and diminished secretions. The local symptoms correspond in degree with the violence of the affection, consisting in burning and distressing heat, and in excessive smarting and throbbing, which are greatly augmented by the warmth of bed, and entirely banish sleep.



## ECZEMA CHRONICUM.

284. Whenever, from the continuance of any of the preceding forms of eczema for a lengthened period, either as a result of the severity of the original disease, or of mismanagement in its treatment, the surrounding skin is irritated by the ichorous discharge secreted by the excoriations, the deeper textures of the integument become more or less involved in the morbid action. The skin is inflamed and swollen, the subcutaneous cellular tissue becomes dense and infiltrated, new excoriations, with deep and extensive chaps and fissures, are produced, and a profuse ichorous secretion is poured out by the diseased structures. The chronic form of eczema is most frequently met with in the flexures of the joints, more rarely it extends over a considerable surface, and occasionally involves an entire limb. It is obstinate and troublesome under treatment, and frequently, in defiance of the best directed management, endures for several months.

Sometimes the secretion diminishes in quantity, and concretes into thin, yellowish, lamellated scabs, which fall off from time to time, and are replaced by successive deposits of thinner scabs. The surface upon which they rest becomes less red and hot, and the diseased skin appears to be gradually progressing towards a cure, when suddenly the redness and tumefaction return, a fresh crop of vesicles is produced, which burst and go through the usual course, but in a shorter space of time than the first. In this manner fresh and fresh crops are at intervals developed, and the morbid action is kept up for months, and even for years.

At other times, the secretion ceases to appear, the epidermis exfoliates in large flakes, and the eczematous disorder degenerates by degrees into psoriasis.

Chronic eczema is always attended with severe itching, which only increases with the attempts made by the patient to relieve himself by scratching. In certain situations, the pruritus is wholly unbearable, and excites the wildest paroxysms, as, for instance, when it occurs in the vulva, upon the scrotum, or around the anus.

## ECZEMA CAPITIS.

285. Eczema of the scalp is a frequent affection in infants at the breast, in children during dentition, and in those who are unhealthy and scrofulous, at a later period. I have had occasion to observe this disease, on numerous occasions, among the ill-fed and poorly-clad children of workhouses. The disease may be limited to a part, or it may attack the whole of the scalp, from which it is liable to extend to the face, the ears, and the neck. The scalp is red, swollen, and painful, the vesicles are produced in great numbers, and speedily burst, pouring forth an abundance of ichorous secretion, which collects around the hairs, and involves them in a thick, lamellated, yellowish crust. The disease is attended with intense pruritis, it diffuses an offensive odour around the patient, and if neglected, engenders pediculi in great numbers. It has been remarked by several authors, that the health of children affected with this disease is good; indeed, they affirm that it acts as a prophylactic against more serious disorders, and recom-

mend that the discharge should be checked with caution. Rayer observes, that "those children who labour under eczema of the face and hairy scalp, whilst they are teething, rarely suffer from convulsions or obstinate diarrhœas."

If the disease be neglected, and indeed sometimes when great watchfulness has been used in the treatment of the patient, it is liable to fall into a chronic state. The scalp becomes thickened, and sometimes fissured; the lymphatic glands frequently become enlarged; subcutaneous abscesses occasionally form; the quantity of secretion is diminished, and the pruritus is not so great. The incrustations are lamellated in form, and dispersed among the hair in great abundance, assuming the characters which have been described by Alibert under the name of *teigne furfuracée*. At other times, the secretion collects the hair into small bundles, and forms around them thin, shining, and silvery pellicles. Rayer compares these sheaths very aptly to the "pellicles that envelope the sprouting feathers of young birds." To the imaginative eye, the hairs, thus surrounded by thin, silvery pellicles, bear some resemblance to asbestos; hence the designation applied to this variety by Alibert, *teigne amiantacée*. Chronic eczema of the scalp not unfrequently extends to the follicles and pulps of the hair, and destroys their function, producing partial alopecia. The destruction of the hair also takes place occasionally upon the eyebrows and eyelashes.

#### ECZEMA FACIEI.

286. Eczema of the face is an affection of frequent occurrence in infants at the breast (hence it is sometimes confounded with *crusta lactea*) and young children, and is more rarely developed in the adult. It is sometimes an extension of eczema capitis, but at other times appears primarily on the face, and especially upon the cheeks, the chin, the upper lip, and the forehead. The eruption invades, as in eczema rubrum, with a numerous cluster of minute and scarcely raised vesicles, which burst in a few days, and pour forth their serous or sero-purulent contents upon the inflamed surface. The eruption not unfrequently assumes the appearance of eczema impetiginodes, or partakes in some parts of the characters of this disease, while, in others, it retains the form of eczema rubrum. The effused secretion dries into thin, lamellated, yellowish and greenish scabs, which become more and more thickened by fresh additions of secretion from beneath, while the eruption extends by its circumference. In this manner the entire face may be covered by a thick, lamellated crust, which forms a complete mask to the features, not unlike that of the *porrigo larvalis* of Willan. The inflammation sometimes extends to the neighbouring mucous membranes, as to the conjunctiva, the Schneiderian membrane, or the membrane of the mouth. The affection is attended with considerable itching and smarting, and the skin becomes fissured with cracks induced by the movements of the face. The blood which escapes from these chaps, and from accidental scratches, mingles with the secretion from the excoriated surfaces, and tinges the crusts of a deep brown colour. When the disease declines, no trace of the affection remains; but if the face be scratched, as frequently occurs in consequence of the intensity of the pruritus, unsightly scars are left behind. The affection occasionally spreads from the face to

the rest of the body, and if improperly treated, may endure for many months, or even years.

Eczema of the face sometimes merges into a chronic form; the vesicles cease to be produced, the secretion diminishes, the surface becomes dry and less red, a number of thin, grayish lamellæ usurp the place of the fallen crusts, and are succeeded in their turn by a furfuraceous desquamation. At a later period the skin may be left sound, but somewhat thickened, and of a deeper tint than natural, and the accustomed pale hue is regained only in the course of time.

#### ECZEMA AURIUM.

287. Eczema makes its attack upon the ears at all periods of life, and in both sexes, and is not unfrequently met with in children during dentition. The ears affected by this disease are red, swollen, and tender, and are covered by vesicles and chaps; which pour out a profusion of ichorous sero-purulent fluid. The discharge spreading upon the inflamed surface desiccates into a yellowish and brownish lamellated crust, which is constantly augmented by fresh secretion. From the pinna, the inflammation often extends into the meatus, and gives rise to great pain. Small subcutaneous abscesses form in the integument around the ears, and the neighbouring lymphatic glands frequently enlarge.

In children this affection generally terminates favourably, but in persons of more advanced life, it is very apt to assume the chronic form. In this case vesicles cease to be produced, the incrustations become thinner, and are diminished; the tissues of the ear are swollen and infiltrated; the meatus is constricted, the skin is fissured by painful chaps, and the disease is exceedingly obstinate, often resisting every method of treatment, and enduring for years.

#### ECZEMA MAMMILARE.

288. Eczema of the nipples is a somewhat rare variety of eczematous affection, and usually assumes a chronic form. It has been occasionally observed in women during suckling, but is more frequently met with in girls at puberty, in women who have never been mothers, at the critical period of life, and in old persons. It is characterized by an eruption of small vesicles, succeeded by chaps, both the one and the other exuding a considerable quantity of secretion, which desiccates into lamellar scabs and scales. The affection is attended with much itching, and the nipple is tender, and frequently bleeds on being rubbed or scratched. In the chronic form, the disease is exceedingly obstinate and difficult of cure. Should it occur during lactation, it is desirable that the infant should be weaned.

#### ECZEMA UMBILICALE.

289. In infants an eczematous eruption followed by excoriation and considerable discharge takes place around the umbilicus. The affection is of little importance, and soon yields to appropriate treatment.

## ECZEMA PERINEALE.

290. In this affection, the eczematous eruption is developed upon the scrotum in the first instance, and thence extends to the neighbouring parts of the thighs, and to the anus; or it may commence in the latter situation, and spread to the scrotum. The disease, whatever its mode of origin, is exceedingly distressing, being accompanied by a most unbearable pruritus, which is increased, rather than mitigated, by the efforts of the patient to relieve himself by scratching. The vesicles burst or are ruptured as soon as formed, a large quantity of ichorous secretion is poured out; fissures and excoriations are formed, and life becomes a burden to the sufferer. Eczema in this region generally assumes the chronic form, and continues with temporary remission in the severity of the symptoms, for months and even years. It is generally met with in persons of the middle period of life.

In the female, eczema perineale is, if possible, more painful and distressing than in the male, and is much heightened by the extension of the eruption to the mucous membrane of the vulva. The irritation is moreover augmented by the frequent effusion of morbid secretions from the vagina. All the functions of the region are rendered painful, the smarting is excessive, and the pruritus unbearable. Adults are most frequently attacked with this disease, and children rarely. I have, however, seen one instance in a little girl eight years of age.

291. *Diagnosis.*—The different varieties of eczema present differences of character which are peculiar to themselves, and must be borne in mind in our endeavours to establish the diagnostic signs of the disease. Thus in eczema simplex, we find clusters of minute vesicles in great numbers, and without accompanying redness; in eczema rubrum, the vesicles are surrounded by inflamed areolæ of considerable extent, and mingled with moist excoriations; in eczema impetiginodes, many of the vesicles contain a sero-purulent fluid, others are serous, and others again are supplanted by excoriated patches; in the latter stages of all the above varieties, we find lamellated scabs and incrustations of variable thickness; and in eczema chronicum we have chaps and fissures pouring out an abundance of ichorous fluid, and, at a later period, copious desquamation. Moreover, eczema is frequently seen as a complication of scabies, and is itself complicated by the pustules of impetigo and êthyma.

*Eczema simplex* is not unfrequently confounded with scabies, and from the similarity of some of their characters, this mistake is very likely to occur. In both, vesicles are present; in both, the eruptions are developed without redness of the skin; both are situated in the flexures of joints, between the fingers, &c., and both are accompanied with pruritus. But, upon careful examination, considerable differences will be detected between the two diseases.

Simple eczema is likely to be confounded with sudamina, with which its vesicles bear considerable analogy. The characters by which it may be distinguished are, that in the latter the vesicles are of larger size than those of eczema, being equal in bulk to a millet seed, while those of eczema rarely surpass the head of a small pin. The vesicles of sudamina are scattered and discreet, those of eczema confluent, and very closely aggre-

gated. The former, again, are associated with profuse perspiration, which is not the case with eczema. Moreover, sudamina occur without preceding irritation of the skin, and their presence gives rise to no abnormal sensations.

*Eczema impetiginodes* is liable to be mistaken for scabies and impetigo. Scabies complicated with pustules, as it sometimes occurs, presents several points of resemblance with eczema impetiginodes, but the other characteristic signs and the presence of a parasitic animalcule are absent. The pustules of scabies, again, contain pus from their first appearance. In impetigo, the pustules never contain serum; they are larger than the eczematous sero-pustules, uncomplicated with vesicles, which are always present in association with eczema impetiginodes, and confined to a small extent of surface. Again the hardened coverings of the excoriations of eczema are thin scabs, while those of impetigo are dense and thick greenish-yellow crusts.

*Eczema chronicum* presents many points of resemblance with lichen agrius; for instance, the chaps and fissures, and the ichorous secretion from the excoriated surfaces. But the incrustations produced by the desiccation of the secretion are somewhat different in the two diseases; in the former, they are thin, lamellar, and of considerable extent; in the latter, they are smaller in breadth, thicker, and more yellow. But the principal difference is rendered apparent when the incrustations fall; for in eczema the surface is smooth, and somewhat tumid and shining, while in lichen it is rough and papular, the pimples being easily distinguished by the touch, if not at once detected by the eye. Moreover, the elementary characters of the two diseases are generally present in the neighbourhood of eruption; in lichen, some few papulæ may always be discovered, and in eczema, a few seated vesicles may for the most part be found.

Chronic eczema may also be confounded with psoriasis, when the former ceases to exude any secretion, but upon careful inspection, a certain difference will always be observed between the lamellated scales which are produced by both affections. Those of psoriasis retain more of the characters of the epidermis than the incrustations of eczema. In other cases, however, it will be found impossible to establish a positive diagnosis between the two diseases, unless a few elementary vesicles be found to confirm our decision.

*Eczema capitis* is sufficiently distinguished from favus by the characters which have been already indicated in the description of this affection. But, nevertheless, a considerable proportion of the scalled heads and ring-worms of every day practice are in truth nothing more than eczemas of the scalp.

*Eczema aurium* is distinguished from erythema intertrigo by the absence of all trace of vesicles in the latter, and by its appearance in the cleft behind the ears. It is attended with chapping, and by the effusion of serous discharge. The same characters serve to establish the diagnosis between eczema mammillarum, umbilicalis, and perinealis, and erythema of those regions.

292. *Causes.*—Eczema is apt to occur either symptomatically as a consequence of some constitutional disturbance, or as an effect of the application of local irritants to the surface of the skin. Of the former kind are the changes which take place in the system under hygienic influences,

as during the spring and summer season of the year, particularly when accompanied by atmospheric vicissitudes; affections of the digestive system, as dentition; the irritation produced by unsound milk in infants at the breast; and stimulating and improper food and drinks in persons of all ages; affections of the uterine system, as amenorrhœa, dysmenorrhœa, utero-gestation, and the critical period of life; the cessation of lactation; affections of the nutritive system, as scrofula; and affections of the nervous system, as mental emotions, particularly of the depressing kind. The local causes of the disease are heat and cold, together with friction, and irritation of the skin produced by whatever cause. Thus, occasionally, we find eczema resulting from exposure to the sun's rays, a variety which has, by Willan, been denominated *eczema solare*. It not unfrequently attends the inflammation produced upon the skin by the irritation of a blister, or by the application of the compound sulphur ointment, or of a burgundy pitch plaster. A variety is also met with affecting the hands of persons who are called upon, in the ordinary occupation of life, to manipulate dry and powdery, or stimulating substances. Of this kind is the eruption on the backs of the hands sometimes observed in grocers, and termed the *grocer's itch*. In the same category must be enumerated the transmission of eczema, by contact, from one person to another, the discharge from the vesicles in this case not effecting any specific action, but merely acting the part of a local irritant. Eczema is developed in females more frequently than in males, an observation which must be referred for its explanation to the greater cutaneous susceptibility of the former than of the latter sex. Again, different parts of the body exhibit a greater or less disposition to the invasion of the disease at different periods of life; hence it is well remarked by Rayer, that in "infancy and youth, eczema appears more particularly on the head; in riper years, on the breast and belly, but especially on the genital organs; and in advanced life, on the lower extremities, and about the margin of the anus." In some instances, the eruption has been observed to be hereditary in its origin, being developed in the infant soon after birth, and after the previous occurrence of the disorder in the parent.

293. *Prognosis*.—Eczema acts very commonly as a safety valve to the health of the system, and the discharge by which it is accompanied must be checked very guardedly, and not before a counter-action, either on the skin, or on the alimentary mucous membrane, has been established by art. In most instances, the eruption is difficult of cure, not so much from any pathological peculiarities which it presents, as from the circumstance of its being often symptomatic of constitutional disturbance or visceral disease, which must be removed before the local affection can be conquered; indeed, it usually happens, that the cure of the constitutional disorder is followed by a spontaneous disappearance of the eczema.

294. *Treatment*.—The treatment of eczema must be regulated by the severity of the symptoms, and by the particular causes of the affection. When the eruption is of idiopathic origin, the requisite treatment will be antiphlogistic; active when the disease is acute, as in eczema rubrum and eczema impetiginodes; moderate when the disease is mild, as in eczema simplex. In all the three varieties, and also in eczema chronicum, cold lotions, warm baths, and vapour baths, will be found useful, and the regimen should be cooling and moderate. In the milder degrees of eczematous eruption, saline laxatives, with diluents and acidu-

lated drinks, will generally suffice. In the more severe degrees, the abstraction of a small quantity of blood, with a more energetic aperient and diluent course, will be requisite. Whenever the disease is symptomatic in its origin, the treatment must be directed against the cause; for instance, in the case of disorder of the alimentary system, the remedies must be adapted to relieve irritation existing in the organs of that system; while the affection which originates in disordered uterine functions will demand the especial management of the uterine organs. When the constitutional powers are reduced, a tonic course and more generous regimen will be pursued with benefit. In the chronic form of eczema, when the disease is obstinate, and resists our common methods of treatment, it becomes necessary to modify the state of the constitution by various means; as, for instance, by a course of hydriodate of potash, of mercury, of liquor arsenicalis, or of tincture of cantharides.\*

In treating the disease locally, if there be considerable redness and inflammation, blood may be abstracted from the part by leeches or puncture; the bleeding being subsequently encouraged by the water-dressing, or by a poultice. The local warm bath and vapour bath will also be found of great service. When the severity of the inflammatory action is somewhat diminished by these means, the alkaline bath or warm sea-water bath may be employed, and a lotion of nitrate of silver, containing from two to ten grains to the ounce, applied twice or thrice in the day. In the interim of the employment of the baths, I have used the tincture of iodine pencilled on the part; or when this excited too much irritation, an ointment of liquor plumbi, or of the nitrate of silver. Other remedies available in chronic eczema are, sulphuret of potash in lotion or ointment, lime water, bichloride of mercury in weak solution, calamine ointment, zinc ointment, sulphate of copper ointment, tannin ointment, white precipitate ointment, red precipitate ointment, calomel ointment with watery extract of opium, carbonate of lead ointment, tar ointment, sulphur ointment, and mercurial ointment.

To relieve the pain and pruritus which accompany the eruption, the following remedies as local applications may be tried—viz., acidulated lotions, alkaline lotions, lotion of super-acetate of lead, emulsion of bitter almonds, or of hydrocyanic acid, lotions of opium or hyoscyamus, camphor mixture, infusion of dulcamara, &c.

\* In employing arsenic and cantharides as therapeutic agents, it will be necessary to watch their effects with care, and bear in mind the serious symptoms which may result from their abuse. Should any of these symptoms be apparent—namely, nervous disorder, and disorder of the alimentary canal, in the case of arsenic, or of the urinary system, in the case of cantharides, the medicines must be immediately laid aside, either permanently, or to be resumed after a few days, according to the judgment of the practitioner. Whenever we put a stop to the exhibition of arsenic, and return to it again, it is necessary to begin with a smaller dose than that at which we left off. Arsenic, when it acts upon the nervous system, performs the part of an alterative, but when its effects are directed upon the digestive system, it appears to me to act like cantharides upon the mucous membrane of the kidney—viz., by counter-irritation, by exciting inflammatory action in the interior, and thus determining from the surface.

The best formula for the exhibition of cantharides is one in which it is combined with equal parts of compound tincture of camphor, and taken in tincture of cinchona.

When the eruption is of long standing, and there exists any reason for the belief that the arrest of the secretion would be attended by injury to the health, counter-irritation should be established either upon the trunk or limbs, or even on both. The best counter-irritants in these cases are the croton oil liniment, or spirituous or acetous infusions of horse-radish, or mustard. Rayer recommends issues and open blisters. In weakly constitutions, stimulating remedies are required, and in eczema of old standing, these applications must be powerful, in order to set up a new action in the part affected. With this view, I am in the constant habit of using a saturated solution of bichloride of mercury, in proof spirit, applied upon the diseased part by means of a camel's hair pencil. Under certain circumstances, it is judicious not to attempt the cure of old-standing eczemas.

Two new medicines have lately been introduced in the treatment of chronic disorders of the skin, and particularly of eczema; these are, Anthrakokali and Fuligokali. The former has been warmly praised by its proposer, Dr. Polya, of Pesth, but has not proved successful in the hands of M. Gibert. The latter was invented by M. Deschamps, of Avallon, and is spoken of very highly by the junior physician of St. Louis as resolute, deterrent, and stimulant. The strength preferred by M. Gibert is from sixteen to thirty-two grains to the ounce of lard. The mode of preparation of these remedies will be found at the end of the volume, Chapter XVII.

### SUDAMINA.

Syn. *Miliary vesicles.* *Miliaria.* *Miliary eruption.* *Hydroa.*

295. Sudamina are small prominent vesicles, of a rounded form, and about equal in size to millet seeds. They are transparent at first, and have a pinkish hue (*miliaria rubra*,) but at the end of twelve or twenty-four hours, they become opaque and milky, (*miliaria alba*,) and resemble small pearls scattered on the skin. Their period of duration is three or four days, they then shrivel and dry up, and form thin scabs, which are thrown off by desquamation. By successive attacks, the eruption may be continued for several weeks.

Sudamina may be situated on any part of the body; the most frequent seat is the trunk, where they usually occupy a district of considerable extent. They are always discreet, though sometimes very numerous, are preceded by no signs, or by very little indication of cutaneous irritation, and by trifling redness of the skin.

Sudamina have received their name from being always associated with excessive heat of the skin, and often with profuse perspiration. Hence they are occasionally met with in eruptive fevers—namely, in rubeola, scarlatina, and variola. They also accompany simple, remittent, and typhoid fevers, and most inflammatory affections accompanied by profuse perspirations, as acute rheumatism. From the size which they usually present—namely, that of a millet seed, they have been termed *miliary vesicles*; hence the specific designation attached to certain diseases, as erythema miliare, implies a complication by these vesicles. Sudamina are most fre-



quently observed in persons possessing a thin and irritable skin, and during the summer season.

296. Since the days of Sydenham, who advocated so powerfully the adoption of a cool temperature and cooling regimen in fevers, sudamina have become rare; but previously to his time they were exceedingly frequent, and from their connexion with fever were regarded as a specific disorder, preceded and accompanied by severe and dangerous fever. This fever was termed miliaria, and for many years was regarded as a dangerous and fatal disease, spreading like an epidemic, and destroying multitudes of lives. But, as I before remarked, since a more rational method of treatment has been employed in medicine, miliary fever has ceased to exist. Bateman remarks, "It is scarcely necessary now to enter into any detail of proofs, that the miliary eruption is the result of a highly heated and perspiring state of the skin, and that in its severe and fatal degree it is solely the effect of a stimulating regimen in a confined atmosphere. The almost total annihilation of the disease, of late years, since the general adoption of a better practice, is of itself unequivocal evidence of its origin." "Hippocrates, whose mode of treatment in febrile diseases was not calculated to produce excitement, has once or twice but casually mentioned the miliary eruption. And again at the latter part of the seventeenth century, when, in the practice of the majority of physicians, the miliary fever was a frequent and fatal occurrence, Sydenham witnessed no such fever; but mentions the occasional appearance only of miliary vesicles, which he ascribes to their proper cause."\*

"Among the various circumstances," continues Bateman, "under which the miliaria was formerly excited, the puerperal state appears to have been most frequently the source of it; insomuch that it was first described as an epidemic among puerperal women. This is sufficiently accounted for by the treatment which was unhappily pursued during the confinement after childbirth, and of which an impressive description is given by Mr. White. For not only was the mother immediately loaded with bed-clothes, from which she was not allowed to put out 'even her nose,' and supplied with heating liquors from the spout of a teapot; but to her room, heated by a crowd of visiters and a fire, all access of air was denied, even through a keyhole. From these causes fever was almost necessarily induced, with the most profuse sweats, oppression, anxiety, and fainting; and these again were aggravated by spicy caudles, spirits, opiates, and ammoniacal medicines. That numbers should perish under such management, with every symptom of malignity, and that many who survived it should escape with broken constitutions, will surprise no person who is acquainted with the baneful influence of over-excitement in febrile complaints."†

297. *Diagnosis.*—The diagnosis of miliary vesicles is not difficult; their being discreet, though numerous; their form and size; their occurrence chiefly on the trunk of the body; the absence of inflammatory redness of the skin; and their association with constitutional disease, and generally with a clinical state of the patient, sufficiently distinguish them from the smaller itching and tingling, clustered vesicles of eczema. The seat of eczema, again, is so different, and the inflammation of the skin which generally surrounds the vesicles. The vesicles of herpes are too

\* Synopsis edited by Dr. Thomson, p. 348.

† Opus cit., p. 350.

large, and the inflammation at their base too conspicuous to be confounded with sudamina.

The *causes* of sudamina have been sufficiently indicated in the preceding description, and the *prognosis* must depend upon the disease with which they are associated, and of which they are simply symptomatic.

The *treatment*, again, applies to the fever which they accompany. The vesicles are too insignificant to call for the use of therapeutic measures.

## CHAPTER V.

## SUPPURATIVE INFLAMMATION OF THE DERMIS.

298. Under the influence of a degree of inflammation of the dermis, for the most part greater, at least at its commencement, than that which exists in the effusive group of diseases, the inflamed dermis gives rise to the formation of pus; the pus occupying the surface of the dermis, and producing an elevation of the epidermis to a limited extent. This irregularity of the surface of the skin—namely, an elevation of the epidermis consequent on the presence of pus, is termed a *pustule*, and this is the only accurate sense in which that term can be employed. There is a wide distinction between a vesicle and a pustule, when these two pathological forms present their typical characters; but it not unfrequently happens, that in consequence of a reparative action set up in the vesicle, pus is produced upon its dermic base, and mingling with the serum, constitutes a sero-purulent, and subsequently, a purulent or pustular vesicle. In such a case it is necessary to remember that a true pustule contains pus from the first moment of its formation, and by this circumstance is essentially distinguished from a vesicle.

299. It is requisite, at the outset of our study of cutaneous diseases, to be most precise in our definitions, and to draw as broad a line as possible between the various pathological forms which we are desirous of characterizing. Scarcely any word has been used more loosely than the term *pustule* in medical nomenclature. At one time it was employed to signify a papula, at another a vesicle, and it was not until the time of the Linnæus of cutaneous pathology, that the proper application of the term was truly made. Willan employed it, with the characters above stated, as the type of his fifth order—*pustulæ*; and in this sense it has been subsequently adopted by successive dermatologists.

300. The diseases which I propose to consider under the definition above given, are two in number—namely,

Impetigo,  
Ecthyma.

301. The order *pustulæ* of Willan embraces five diseases, two of which, had he lived at the present time, would, I am convinced, have been excluded by himself—namely, porrigo, and scabies. The genus porrigo of Willan contains diseases of the most opposite kind, and has been the source of much confusion, so much, indeed, that it would be well that the term should, for the future, become obsolete and forgotten. What relates to true porrigo will be found in this classification under the designation, *favus*. Scabies, again, is a disease possessing several elementary forms, of which

both vesicles and pustules are accidental, and only occasionally present: the pustules, when they exist, belonging to ecthyma. Variola, as placed by Willan in the order pustulæ, is forcibly torn from all its natural affinities, and for this reason I have thought it correct to transfer the genus to the group of eruptive fevers. Rayer admits no less than ten genera of pustular inflammations, for four of which he is indebted to variola—namely, variola, varicella, vaccinia, and vaccinella. There could have been no objection to thus establishing a distinct group of variolous affections, indeed, some benefit might have flowed from such an arrangement, but the possible advantages are immediately destroyed by the companionship with which he has leagued them. Thus, from the highly inflammatory and contagious fever of variola, we pass on immediately to three diseases of the sebaceous glands—namely, rosacea, acne, and sycosis; next in order follows impetigo, then favus, a peculiar disease of the hair follicles, and lastly, ecthyma.

302. The genera impetigo and ecthyma constitute the two essential forms of pustules indicated by Willan—namely, psydracia and phlyzacia, the former being a psydracious ( $\psi\upsilon\chi\rho\alpha$ ,  $\nu\delta\rho\alpha\kappa\iota\alpha$ , frigidæ guttulæ) pustule—that is, “a small pustule, often irregularly circumscribed, producing but a slight elevation of the cuticle, and terminating in a laminated scab. Many of the psydracia usually appear together, and become confluent; and, after the discharge of pus, they pour out a thin, watery humour, which frequently forms an irregular incrustation.” The latter, a phlyzacious ( $\phi\lambda\upsilon\zeta\epsilon\iota\nu$ , to be hot) pustule—that is, one, “commonly of a large size, raised on a hard, circular base, of a vivid red colour, and succeeded by a thick, hard, dark-coloured scab.” The achor and the favus of Willan are no longer considered as pustules.

303. The transition, which I have already had occasion to remark, from erythema to pemphigus, and from rupia to herpes, may also be extended to pustulous affections. Eczema, in certain of its forms—as in the impetiginous variety—is seen gradually merging into impetigo, while ecthyma is farthest removed, both in position and characters, from the vesicular group.

### IMPETIGO.

Syn. *Psydracia Crusted tetter, or scall.* *Dartre crustacéé*, Fran.—*Kleienausatz*, Germ.—*Melitagra*, Alibert.

304. Impetigo\* is a non-contagious inflammation of the skin, assuming usually a subacute type, and characterized by the eruption of small, flattened pustules, without inflamed areolæ. The pustules are for the most part arranged in thickly-set clusters, which occupy a small extent of surface; at other times they are distributed, more or less generally, over the surface of the body. Each pustule attains its full development, and bursts in the course of two or three days, terminating in rough, yellowish, and transparent crusts, of considerable thickness. The disease occurs frequently in successive crops, is attended with trifling or no constitutional symptoms, and endures from three or four weeks, to as many months, and even years.

\* Impetigo, *ab impetu*, according to Pliny.

305. The mode of distribution of the pustules has given rise to the division of the disease into two principal varieties—namely,

Impetigo figurata,  
 ,, sparsa.

To these have been added, by Willan, other varieties, respective of degree of severity or locality, which it would be more desirable to consider as subvarieties under the above heads; one of these, impetigo rodens, I omit altogether from consideration, since the disease described by Bateman under this name is evidently a cancerous ulceration of the skin, and not an impetigo. The remaining varieties are—

Impetigo scabida,  
 “ erysipelatodes,  
 “ capitis.

#### IMPETIGO FIGURATA.

Syn. *Dartre crustacée flavescence*, Alibert.

306. This variety is characterized by the occurrence of the eruption upon a distinctly circumscribed and defined spot, which is usually circular on the face and upper parts of the body, and oval on the lower extremities. The disease commences by the appearance of one or several small patches of redness, which remain distinct throughout the progress of the eruption, or subsequently unite with each other, and constitute a single patch, or it may appear at once as an inflamed patch of considerable size. Upon this inflamed patch a numerous crop of small yellow pustules are developed, which rise but slightly above the surface of the skin, and are collected into thickly set, and sometimes confluent clusters. At the end of one, two, or three days, the pustules burst and discharge their contents, and the effused fluid desiccates into thick, brittle, greenish-yellow coloured crusts, resembling a patch of dried honey. Beneath the crust the surface is red, inflamed, and excoriated, and pours out an abundant sero-purulent viscous secretion, which contributes still more to the thickness of the crust. Unless prolonged by successive eruptions, the crust falls off in from two to four weeks, leaving the surface beneath of a vivid red colour, somewhat swollen, exceedingly tender, and covered by a thin and shining epidermis. The surface is occasionally fissured by the movements of the part, and a secretion is poured out, which hardens into a thin secondary crust, and is followed by successive laminæ, formed in the same way. When the whole of the original patch is concealed by the kind of incrustation above described, the character of the disease may still be distinguished by a few scattered pustules, which always appear around the circumference of the crust. As the disease progresses towards cure, the sero-purulent secretion diminishes by degrees, and ultimately ceases; the crusts are no longer augmented in thickness; the secondary crusts, which have become progressively thinner, cease to be formed, and the skin, which is left red and congested, returns, after a certain space of time, to its original colour and pliancy.

Constitutional symptoms are either very slight in impetigo, being limited to some degree of lassitude and headach, or they are absent altogether. The local symptoms consist of heat and itching, which are much increased, and accompanied by a feeling of tension and smarting during the pustular stage. After the formation of the crusts these symptoms gradually subside, but the skin remains tender for some time after their fall, and very susceptible of a return of the eruption if exposed to fresh irritation.

Impetigo figurata presents various modifications in relation to the extent of surface affected, and the course of the disease. Sometimes it is confined to a very limited space, as to the middle of one cheek, the upper lip, the nose, or one or both eyelids, while, at other times, it fixes at once upon the entire face. Sometimes the eruption occupies a patch of small size in the first instance, while the disease spreads by its circumference, (*impetiginous ringworm*,) so as eventually to cover a large surface, whereof the centre presents the crusted stage of the affection, and the periphery its erythematous and pustular stages. The crusts again occasionally offer a peculiarity of appearance, being conical in their shape, and compared by Alibert to stalactites. This variety in form he terms *dartre crustacée stalactiforme*; it is most frequently seen upon the eyelids, borders of the eyebrows, nose, &c.; in brief, in any situation where the effused secretion has an inclination favourable to the gravitation of the fluid from the surface of the skin.

Instead of running through its course, and terminating by the restoration of the skin to soundness, within a moderate period, impetigo figurata is sometimes prolonged indefinitely by successive eruptions of pustules, each eruption pursuing the natural course of the typical affection. These successive attacks are occasioned either by a continuance of the original cause of the disorder, or by the employment of stimulating and irritating substances, for its cure. In such cases the morbid action extends to the deeper tissues of the skin, producing thickening and condensation of the integument. Again, the eruption may occur periodically, appearing in the spring or autumn season, for several successive years.

The most frequent seat of impetigo figurata is the face, and more particularly the cheeks, but it may also occur upon the trunk of the body, and extremities. The fore-arms I have remarked to be a very usual position of the eruption. It very commonly appears upon several regions at the same time, and there exists some little difference in regard to the form of the patch, according as it may be developed upon the upper or the lower extremities; thus, on the former it approaches nearer to the circular, and on the latter to the oval shape.

307. Impetigo figurata sometimes assume a *chronic* form; fresh crops of pustules are no longer produced, but the integument takes on a morbid action, it becomes thickened and infiltrated, and the excoriated surfaces pour out an abundance of viscous sero-purulent secretion, which continually desiccates into fresh incrustations, the incrustations being reproduced as often as they are rubbed or thrown off. Occasionally, the incrustations, instead of being thrown off, form a thick case upon the part affected, or around the limb, and constitute that variety which has been denominated by Willan, *impetigo scabida*. A limb, surrounded by a case of incrustation of this kind, has been compared, very aptly, to the trunk of a tree covered with a rough and cracked bark.

## IMPETIGO SPARSA.

Syn. *Scattered scall, or tetter.*

308. Impetigo sparsa differs from impetigo figurata only in the more disseminated arrangement of the pustules. Instead of being confined, as in the latter, to a single spot or region, they are, in the *sprinkled* form, distributed over a considerable surface, for instance, over an entire limb, and sometimes over the whole body. The eruptive process pursues precisely the same course with that described as the typical form of the preceding variety; it is attended with considerable pruritus, and the pustules are successive, numbers being freshly developed in the midst of fully formed crusts. Impetigo sparsa usually appears on the limbs, especially upon the lower extremities, and about the ankles, and is frequently seen in the neighbourhood of joints. On the legs it is not unfrequently associated with œdema, and is exceedingly troublesome.

Impetigo sparsa is more apt to degenerate into the chronic form than the preceding variety. The surface beneath the crusts often presents superficial ulcerations, the integument becomes thickened and infiltrated, and the large collection of crusts constituting impetigo scabida are more frequently produced.

## IMPETIGO SCABIDA.

309. Impetigo scabida is merely that state of the two preceding varieties, in which the surface is covered by a thick incrustation, resembling the rough bark of a tree. This crust is broken and fissured from point to point by the movements of the part, and through the apertures a quantity of sero-purulent secretion oozes to the surface, and desiccates upon the exterior of the crust. Sometimes impetigo scabida occurs upon the face, forming a complete mask to the features, but generally it is seen only on the limbs, and accompanies the chronic form of the eruption. It is attended with much pain in moving the limb, and by troublesome pruritus. When the crust is removed the surface beneath is observed to be excoriated by superficial ulcerations, and fresh incrustations are speedily formed. Impetigo scabida is for the most part met with in old persons, and in those of debilitated constitution, and is not unfrequently associated with œdema.

## IMPETIGO ERYSIPELATODES.

310. The ordinary forms of impetigo are characterized by the absence of constitutional symptoms, and by the moderate degree of inflammation which accompanies the local disease. Sometimes, however, the eruption is preceded by burning heat of surface, tension, great redness, tumefaction, in short, by the usual signs of erysipelas. To these are added fever and considerable constitutional disturbance, the eruption appearing as usual, and running the same course. It is upon this combination of symptoms that Willan has bestowed the designation of impetigo erysipelatodes.

## IMPETIGO CAPITIS.

Syn. *Crusta lactea*. *Tinea lactea*. *Porrigo larvalis*. *Porrigo favosa*. *Teigne muqueuse*. *Teigne granulée*, Alibert. *Milchgrind*, *Milchschorf*, Germ.

311. That affection of the face and head of young children termed milk-crust, or *crusta lactea*, and by Willan, *porrigo larvalis*, is an *impetigo figurata*, identical with the typical form of this disease, or if it be in any kind different, modified merely by the age of the patient, or by its more or less extensive occupation of the scalp and face. *Crusta lactea* presents several varieties in relation to degree of inflammation and thickness of crust; it may exist upon all parts of the head and face at the same time, or be located separately upon the face, the scalp, the ears, the temples, the *alæ nasi*, or the lips.

The pustules of *crusta lactea*, from exposure to the influence of the air, are somewhat whiter than those of *impetigo* developed on more protected parts of the body. They are accompanied by much itching, and are frequently broken by the action of the nails; the escape of pus and of the viscous sero-purulent fluid which succeeds giving rise to the characteristic greenish-yellow crusts of *impetigo*; and when, as frequently happens, the blood flows from the wounds caused by the nails, those parts of the crusts stained by the sanguinolent fluid assume a deep brown colour. When the wounds inflicted by the nails are deep, cicatrices are apt to remain after the subsidence of the disease, but, under ordinary circumstances, the skin is left perfectly free from any trace of morbid action. On the fall of the crust, the skin is red and congested, and covered by a thin and glossy epidermis; by degrees, the natural hue of the integument is restored, and the epidermis, after repeated exfoliations, regains its normal appearance.

312. *Impetigo figurata of the scalp* (*crusta lactea* of the scalp) is modified in its characters by its development upon the seat of the hair. The hairs are matted together by the sero-purulent discharge, and a thick yellow crust is formed, to which the matted hairs act the part of a felt. If this crust be allowed to remain, the morbid secretions collect beneath, and give forth a most offensive odour; the scalp is irritated and inflamed by its presence; pediculi are sometimes engendered in great numbers, and occasionally the hair falls with the crust, leaving the skin bald and thickened. Sometimes, as a consequence of this irritation, purulent collections are formed beneath the skin, and the lymphatic glands of the neck become enlarged.

The alopecia produced by *impetigo* differs materially from that occasioned by *favus*; in the former, the ejection of the hair is only temporary, the formative structure is not organically injured, and the hair is subsequently reproduced, of the same colour and with the same characters as the rest. Again, the patches are not regularly circumscribed nor perfectly denuded, as in *favus*; on the contrary, they are uncertain in form, and some hairs still remain on various points of the alopeciated surface.

*Impetigo* of the scalp will last for months, and even for years, unless the crust be entirely removed, and the causes of irritation above alluded to prevented. When the inflamed skin is exposed at an early period,



some few superficial ulcerations, from which an abundant secretion is poured out, are all that appears; at a later stage, however, the ulcers become larger, and the deeper textures of the scalp are more or less involved.

The local symptoms accompanying impetigo capitis are, heat, pruritus, and more or less tension and pain. The constitutional symptoms are scarcely apparent, or very trifling, and when they exist, are frequently attributable to other causes, such as teething, &c., the period of dentition being that at which crusta lactea mostly appears. The eruption is occasionally vicarious of visceral disorder, and in this case requires to be watched with care during the progress of treatment. The pustules are sometimes intermingled with vesicles of eczema.

313. *Impetigo sparsa of the scalp.*—In certain instances, although these are rare as compared with the occurrence of the preceding affection, the pustules of impetigo assume upon the scalp the dispersed form of impetigo sparsa. The secretion from these pustules produces the agglutination of several hairs, and forms hard and irregular crusts of a brownish or grayish colour, which have been compared to small fragments of mortar imbedded among the hair. From these crusts, small particles or granules are frequently broken off, and are found interspersed between the hairs; hence the disease has been designated by Willan, *porrigo granulata*, and by Alibert, *teigne granulée*. Impetigo sparsa of the scalp, when neglected, gives rise to most of the inconveniences described under the head of impetigo figurata of the same region. The secretion becomes highly offensive, it acts as an additional cause of irritation to the cutaneous textures, and is the source of attraction to innumerable epizoa.

This disease occurs in young persons, and particularly in children; it is usually situated on the back part of the scalp, but sometimes affects the entire head. It is met with only in those whose constitution is enfeebled, and who are exposed to hygienic influences of an unhealthy kind.

314. *Diagnosis.*—The pathognomic characters of impetigo are, the small size and little elevation of its psudracious pustules; the subsequent abundant viscous and yellowish secretion which the exposed surfaces pour out; and the thick yellowish green, or brownish and grayish, semi-transparent crusts. I have seen eczema impetiginodes mistaken for impetigo, but with the characters of the latter in the memory, it is scarcely possible to confound this disease with eczema. In eczema, the typical vesicles are always present on some part of the morbid surface, while its scabs are thin and lamellated.

When impetigo affects the chin only, it may be mistaken for sycosis, unless we recollect that in the latter eruption the pustules are larger, more prominent, discreet, less yellow in colour, and succeeded by less secretion. Moreover, the crusts of sycosis are darker in colour, less moistened by secretion, not renewed when they fall off, and accompanied by tubercles and indurations.

Impetigo of the scalp is distinguished from favus by the absence of the bright yellow cups, in addition to which, the loss of hair which accompanies the latter two forms of disease constitutes an important distinction.

The pustular forms of syphilitic disease may simulate impetigo, but in these cases, the livid or purplish stain of the skin, the dark colour of the

crusts, and the deep and obstinate ulcers which follow, are peculiar to syphilis.

315. *Causes.*—Impetigo occurs in both sexes, at every age, and in all seasons; it is, however, more common in children than in the adult, and in women and persons having a thin and delicate skin, than in the male sex, and those whose skin is less susceptible. Impetigo figurata is most frequently met with in the spring season, while impetigo sparsa appears usually in the autumn, and in persons of adult and advanced age.

The disease is sometimes referrible to constitutional causes, as in those instances where it is found associated with the general disturbance produced by dentition, amenorrhœa, or by the cessation of the menstrual period. Its appearance seems influenced also by mental excitement, excess in diet, or stimulating drinks, violent exercise, &c. It is very commonly met with in work-houses, where a number of children of unhealthy constitution, poorly fed, and insufficiently clothed, are assembled together; and particularly where care is not bestowed upon the three great hygienic principles—ventilation, cleanliness, and exercise.

Local irritation of the skin is a frequent occasional cause, as in that produced by lichen, the application of stimulating substances to the cutaneous surface, such as dry powders, metallic dust, sugar, lime, &c., and the heat of the sun in the spring and summer season.

The impetigo capitis of infants, or the crusta lactea, is especially referrible to the irritation caused by teething, the disease occurring both at the first and second dentition. It is developed at this period in strong and healthy children, as well as in those who are weakly and scrofulous.

316. *Prognosis.*—Impetigo is an extremely troublesome and offensive disease, but by no means dangerous to life. It is frequently tedious of cure especially when injudiciously treated, and by the improper use of remedial means may be prolonged indefinitely, or be made to assume the chronic form, which latter is always obstinate and rebellious.

317. *Treatment.*—In impetigo, unaccompanied by severe or extensive inflammation, emollient and sedative fomentations, the vapour bath and water dressing are the proper applications. If the inflammatory action be greater, a few leeches may be applied with benefit, and if the inflammation be extensive as well as severe, general bleeding may be employed. If the above simple treatment fail in restoring the skin to its healthful condition, alkaline or sulphuro-alkaline or astringent lotions may be used, or any one of the following ointments—namely, oxide of zinc, calamine, acetate of lead, fuligokali, white precipitate, or dilute nitrate of mercury. Hydrocyanic acid, in the formula recommended by Dr. Thomson, is also a valuable remedy:—

R  
Hydrocyanic acid, ℥iv.  
Acetate of lead, gr. xv.  
Alcohol, ℥iv.  
Water, ℥vij.

M.

In the chronic form of impetigo, the vapour douche and bath will be found invaluable remedies; they soften and remove the crusts without

exciting pain, and calm the irritation of the skin. After the entire separation of the crusts, the inflamed surface should be bathed with a weak alkaline or astringent lotion and enveloped in oilskin, the vapour douche being repeated once or twice daily. Should the disease resist these measures, recourse may then be had, in turn, to lotions containing sulphuret of potash, nitric acid, and nitrate of silver. The ointment of the nitrate of mercury may in some cases be found useful. Creosote ointment, and zinc ointment, I have employed successfully after the local action has been reduced, and the system regulated. In very obstinate cases, arsenic, both as a general and local measure, has been recommended.

The constitutional treatment should consist in the restoration of any of the organic functions that may be disturbed. For this purpose, laxative medicines, antacids, emmenagogues, and tonics, may, according to the indications of the case, be employed.

In the treatment of *crusta lactea*, warm bathing and the vapour bath, with weakly alkaline fomentations, are the chief remedies. The other applications above recommended may also be used in a diluted form; and in strong and robust children it is often desirable to diminish the congestion of the skin by means of one or two leeches. The internal exhibition of laxative remedies, such as mercury with chalk, and rhubarb, or rhubarb and magnesia, will also be found useful and in most instances, when the infant is suckling, it will be proper to change the nurse, or wean the child. Rayer judiciously recommends, that where this disease depends obviously on dentition, and where the constitutional symptoms accompanying that state are relieved by its presence, we should be cautious in repressing the disorder, and confine our treatment to simple cleanliness.

In impetigo of the scalp, the hair should be cropped over the diseased parts, and the crusts completely removed by means of the vapour douche and water-dressing. The parts should be kept free from the irritation of fresh incrustations by frequent washing, and the same remedial means pursued as above recommended for impetigo in other parts of the body.

318. An incident which recently fell under my notice, speaks volumes with regard to the treatment of this disease. I had often occasion to observe with regret the utter uselessness of all medicinal applications in the treatment of these cases in the St. Pancras Infirmary, where numerous children are annually affected, and several are constantly in the sick wards. This want of success originated in the absence of proper nurses to carry out the directions of the surgeon. It was in vain that the necessity of cleanliness was urged upon them; they received little for their labours, and were not disposed to engage in a most disagreeable duty on philanthropic grounds alone. Under such circumstances, the pharmacopœia was exhausted of its specifics, but no advantages resulted. Things were in this state, and I had little hope of change, when, to my surprise and delight, I perceived the number of patients suddenly diminish, and those who remained looked cheerful and better in health. I inquired into the cause of this change, when I learned that a new nurse had been appointed to the charge of the children, and that she had set her shoulder vigorously to the wheel of these obstinate eruptions, and had turned out several cures. Upon asking her how she proceeded, she of course looked mysterious, but I quieted her fears of my perquisitions, by telling her that it was not her secret that I sought, that my object was simply to approve of her proceeding, and to urge her to its continuance. She said in reply, that her treat-

ment consisted in the application of a remedy derived from a "subscription" given to her mother by Sir Astley Cooper, that this legendary specific was a coarse admixture of "butter and pepper." For sound philosophy this remedy,\* in its *modus operandi*, is worthy of the celebrated name with which the female *esclepiad* had associated it, and I applauded its effects; it was an apt illustration of the sympathetic treatment of wounds by anointing the weapon with salves, and swathing it in countless bandages. But I reserved for myself that which my female colabourer could not have comprehended—the perception of the benefit derivable from the thorough ablutions and rigid cleanliness with which the specific was accompanied.

### ECTHYMA.

Syn. *Phlyzacia. Papulous scall.*

319. Ecthyma† is an acute inflammation of the skin, characterized by the eruption of prominent pustules of a rounded form, and considerable size, upon any part of the surface of the body. The pustules are usually discreet, they are developed on a hard and inflamed base, and terminate in round, dark-coloured crusts, which leave a deeply congested surface on their fall, and sometimes a superficial ulcer, followed by a cicatrix. The eruption is for the most part partial and successive; in rare instances it is general; in the former case it may endure for one or two weeks; in the latter, for several months. It is not contagious.

320. Ecthyma is endowed by Willan with four varieties, having relation to the constitution and age of the patient; these are, *ecthyma vulgare*, *ecthyma infantile*, *ecthyma luridum*, and *ecthyma cachecticum*. I prefer, however, with Rayer, to consider the disease as presenting an acute and chronic type; the former of these divisions corresponding with the *ecthyma vulgare*, and the latter embracing the three remaining varieties. In a tabular form, the varieties of *ecthyma* are,

*Ecthyma acutum seu vulgare.*

*Ecthyma chronicum,* { *E. infantile,*  
                                   { *E. luridum,*  
                                   { *E. cachecticum.*

#### ECTHYMA ACUTUM SEU VULGARE.

321. This eruption is most frequently seen upon the extremities, often on the shoulders and neck, but very rarely on the scalp. Its development is indicated by the appearance of small, red, and circumscribed spots, which gradually rise above the surface, are hard and painful to the touch, and increase to a variable size. Upon the summit of each of these conical elevations a small quantity of puriform fluid is effused beneath the epidermis,

\* A humble imitation of the unguentum *piperis nigri*, of the Dublin Pharmacopœia, formerly recommended for favus.

† Der, *εκθυσιν*, to burst forth.

and the matter continues to be augmented by additional secretion, until a pustule is formed. The size of the pustule is various; usually it is as large as the half of a pea, and surrounded by a hardened base of vivid redness, while at other times it covers the whole extent of the hardened base, and resembles a bulla distended with pus. The development and growth of the pustule is accompanied by severe pain, which is frequently of the lancing kind. In the course of three or four days after the completion of the pustule, the contained fluid dries up into a dark coloured scab of various thickness, which falls off in a few days, leaving behind a congested circular spot, of a deep red colour. Sometimes the purulent fluid is removed by absorption, and the surface of the skin is restored to its natural state, after repeated desquamation. At other times a superficial ulcer is formed, particularly on the lower extremities, and terminates with a slight cicatrix. When the eruption of pustules has been numerous, the congested spots left by the fall of the crusts present a remarkable appearance.

Rayer gives so excellent an account of the structure of the pustules, during their progressive development, that I am tempted to quote his words. "We find," writes this author,\* "1. that in their first stage, (rede levations,) there is merely sanguineous injection with conical tumefaction of the corion; 2. that in the apex, more rarely over the whole surface of the elevations, and under the cuticle, there is an effusion of a certain quantity of purulent serum; 3. that in the third stage, which follows immediately after, there is a kind of pseudo-membranous matter deposited in the centre of the elevation, which is now evidently perforated; 4. that after the voidance of this matter, and the removal of the cuticle, the pustule appears under the form of a cup-shaped cavity, surrounded by a hard, thick, puffed edge; 5. lastly, that on the following days this thickened margin subsides, at the same time that a slight cicatrix is formed under the crust, the centre of which is fixed within the point where the perforation had been observed."

#### ECTHYMA CHRONICUM.

322. Chronic ecthyma is a more common form of disease than the acute variety; it occurs in successive eruptions, generally in persons of debilitated and cachectic habit, and is prolonged for several months.

When it appears in ill-fed, ill-clad, and weakly children, or in those who are debilitated from preceding disease, it constitutes that variety which has been designated by Willan, *ecthyma infantile*. This eruption is not unfrequently associated with irritation, or disease of the alimentary mucous membrane. The pustules are very dissimilar in point of size, some being small, and some large; they are circular in form, surrounded by an areola, more or less inflamed, and terminate by absorption of the purulent fluid, and epidermic desquamation, or by ulceration. The ulcers in this disease are unhealthy, and difficult of cure.

In old persons, and in those who have injured their constitution by excess, the congested areolæ often present a purplish red and livid colour; the pustules are of large size, and filled with a sanguinolent, puriform fluid, and they are remarkable for the tardiness of their course. This character of the eruption constitutes the *ecthyma luridum* of Willan and Bateman.

\* Translation by Willis, second edition, p. 530.

In persons of unsound and cachectic constitution of all ages, the cachectic form of eruption is developed. The pustules occur upon all parts of the body, but most frequently on the legs. The inflammation preceding the eruption is more extensive than in *ecthyma acutum*, and variable in degree. At the end of six or eight days, the epidermis is raised by the effusion of a small quantity of dark, sanguinolent pus, which forms by its increase an unhealthy discoloured pustule. When the pustule is fully developed, the epidermis bursts, and the denuded surface becomes covered by a thick, dark-coloured crust, which appears enchased within the skin, and remains adherent for several weeks. If the crust be removed by accident or design, an ill-favoured ulcer with inflamed edges is exposed, which is tedious and difficult of cure.

The pustules of *ecthyma* are not unfrequently associated with scabies, lichen, prurigo, and some other chronic affections of the skin.

323. *Diagnosis*.—The large size and prominence of the pustules, their inflamed bases, and the mode of their development, serve to distinguish *ecthyma* from all other pustular affections. When the pustules of *acne* and *sycosis* attain a large size, they bear some resemblance to *ecthyma*, but are easily distinguished by the broad and inflamed areola of the latter, and the hard tubercle-like elevations without areolæ of both the former.

Syphilitic *ecthyma* is distinguished from the form at present under consideration, by the more chronic character of the eruption, the limited extent of the areola, its coppery hue, the blackness and concentric marking of the crust, and the presence of other signs of constitutional syphilis.

324. *Causes*.—*Ecthyma* may be developed at all periods of life, and at all seasons, but is principally observed in young persons, and in the adult, and most frequently in the spring and autumn.

It may be excited by various stimuli applied to the surface of the skin, such as sugar, lime, salt, sulphur, &c. Grocers are liable to this eruption, from the irritation produced by the first of these substances, and bricklayers of the second. The manipulation of pulverulent substances of all kinds is apt to act as an exciting cause, and simple friction may give rise to the same consequences. The pustules following the irritation of tartarized antimony are *ecthymatous*; they are umbilicated, contain in their interior a false membrane, are very numerous, and succeeded by dark-coloured crusts.

*Ecthyma* is frequently excited by the irritation caused by other cutaneous diseases, as by *variola*, *rubeola*, *scarlatina*, *herpes*, *prurigo*, *scabies*, &c.

This eruption is often symptomatic of a disordered state of the system, as of some chronic affection of the viscera, or irritation of the gastrointestinal, or uterine mucous membrane. It may also be induced by excess of mental or physical exertion, by bad and deficient food, want of proper clothing, residence in damp and unhealthy situations, want of cleanliness, debilitating causes of various kinds, excesses, and exposure to vicissitudes.

325. *Prognosis*.—The prognosis of *ecthyma* depends on the state of constitution of the patient rather than upon the eruption, which is in most cases an effect of disordered health. When the cause is external, and the form of the disease acute, the eruption seldom continues longer

than two or three weeks; but the chronic affection may be prolonged for several months.

326. *Treatment.*—In the acute variety of ecthyma, after the removal of the cause, some gentle laxative and alterative medicine with diluents and abstemious regimen is all that will be required. The best local application is the superacetate of lead, or oxide of zinc ointment, or if the inflammation be severe, sedative and emollient fomentations and water dressing.

When the disease is symptomatic of visceral disturbance, the treatment must be directed to the organ affected; the abstraction of blood is sometimes useful; tonic medicines, preparations of iron; abstinence from stimulating food or drinks; the cold or tepid bath, succeeded by friction on the sound integument, &c. I have employed the iodide of potassium with great benefit, in the bad state of health which accompanies ecthyma cachecticum. The ill-favoured ulcers sometimes left by the latter variety of the disease may be brought into good condition by water dressing, and mild stimulants, such as a solution of the nitrate of silver, sulphate of zinc, supersulphate of alumina, chloride of lime, &c., or the weak nitric acid lotion, either with or without opium.

## CHAPTER VI.

## DEPOSITIVE INFLAMMATION OF THE DERMIS.

327. By the term "depositive," which I have selected only in the absence of a more suitable word, I mean to express that condition of the inflamed dermis in which plastic lymph is exuded by the capillary rete into the tissue of the dermis, so as to give rise to the production of small hard elevations of the skin, or pimples. In the preceding groups of diseases we have seen simple congestion of the papillæ of the dermis, effusion of the serous portion of the blood on the surface of the dermis, formation of pus on the surface of the dermis; but the alteration now under consideration is different from the whole of these; there is no inordinate congestion, there is no serous effusion, and no generation of pus. As far as my observation of the pathological characters of the present disease enables me to determine, there is effusion of plastic lymph into the tissue of one or more of the papillæ of the dermis, constituting a pimple of small size.

328. The pathognomic symptoms accompanying pimples correspond moreover with the supposition of such a pathological structure; they are accompanied by incessant itching, a sensation which may easily be explained by reference to the moderate degree of pressure produced upon the nervous plexus of the papillæ by the effused lymph, or, probably, by the distention of the neurilemma of the nerves by the more fluid parts of the lymph, so as to affect the nutrition of the nervous substance. Pruritus is unquestionably a degree of pain, but it is one of a mild kind, and such as we see for the most part in papular eruptions of the skin, or when the dermis is returning to its natural state after inflammatory congestion of its tissue, or, again, when foreign substances, such as scabs and crusts, effused fluids, parasitic animalcules, &c., lie in contact with the skin.

229. The diseases which are here characterized by the designation "Depositive inflammation of the dermis," correspond with the order Papulæ, of Willan; and in this instance no difference of opinion exists among dermatologists as to the morbid affections admitted into the group. They are three in number—namely,

Strophulus.  
Lichen.  
Prurigo.



Rayer and Gibert remark that the above number might very properly be reduced to two; for that strophulus is nothing more than the lichen of young children and infants, while Alibert considers the whole under the single genus, Prurigo.

330. The definition given by Willan of the elementary form of papular affections admits of no improvement. A papula or pimple is “a very small and acuminated elevation of the cuticle (dermis) with an inflamed base, very seldom containing a fluid, or suppurating, and commonly terminating in scurf.” Papulæ terminate by resolution, generally with furfuraceous desquamation of the epidermis. The papulæ of strophulus have usually a greater elevation than those of lichen and prurigo. The pimples of lichen are minute and conical, while those of prurigo are broad, and scarcely raised above the surface, being frequently appreciable only to the touch. Some differences are perceived also in relation to colour; thus the pimples of strophulus may be either red or white, those of lichen are always more or less red and inflamed, while the papulæ of prurigo scarcely differ in tint from the surrounding skin.

331. The papular group of diseases of the skin offer no transitional characters to the pustular affections which preceded them, but they are allied with the succeeding group—namely, of squamous diseases, by their elevation above the surface, and by the production of a thin furfuraceous scale, by which they are surmounted at their decline.

## STROPHULUS.

Syn. *Tooth-rash. Gown. Gum.*

332. Strophulus is a disease of early infancy, consisting in the eruption of small pimples upon part, or upon the whole surface of the body. The pimples are usually red, but sometimes whiter than the surrounding skin; they are attended by itching, which is increased by warmth, but they give rise to little constitutional disturbance, and terminate by resolution and epidermic desquamation.

333. The appearance, distribution, and colour of the pimples of strophulus have given rise to its division into five varieties—namely,

Strophulus intertinctus.

„ confertus.

„ volaticus.

Strophulus albidus.

„ candidus.

### STROPHULUS INTERTINCTUS.

334. Strophulus intertinctus, the red gum, or red gown of popular language, is an eruption of prominent pimples, of a vivid red colour, upon one or several regions of the body, or generally dispersed over the entire surface, the eruption being intermingled with minute red points and erythematous patches of variable extent. The pimples remain upon the skin for some time, some disappearing while fresh crops break forth, and the disease terminates at the end of one or two weeks by desquamation

of the epidermis. Occasionally the strophulus appears at successive periods, being alternated by intervals of freedom from the attacks. This eruption was observed by Willan to be developed principally on the cheeks, the backs of the hands, and the fore-arms. It is unaccompanied by symptoms of constitutional disturbance, and as frequently affects the strongest and healthiest as weakly children. Strophulus is sometimes coincident with acidity of stomach and intestinal disorder, both of which may depend with the eruption itself upon the irritation of teething. When the eruption has been repelled by exposure to cold or mismanagement, serious effects have been produced on the nervous system and alimentary mucous membrane.

#### STROPHULUS CONFERTUS.

335. Strophulus confertus, or tooth-rash, is a more severe variety than the preceding. The pimples are more numerous, and smaller in size; they are aggregated into considerable patches, and are often confluent. Sometimes they are distributed generally over the surface of the body, but more frequently are confined to a single or to several regions, as to the face, the breast, or the arms. The redness of the eruption is less vivid, but more lasting than strophulus intertinctus. This disease usually attains its height in twelve or fourteen days and then subsides, leaving a copious furfuraceous desquamation of the epidermis. Frequently on its decline a fresh eruption succeeds. Strophulus confertus, according to Willan, occurs in most infants at about the fourth or fifth month.

336. Another form of this disease is described by the same author as taking place in infants of seven or eight months. The pimples in this modification are collected into one, two, or three large and irregular clusters, which appear upon some one point, as upon the fore-arm, and thence extend, upwards and downwards, along the arm. The patches as well as the intermediate skin are of a deep red colour, and are succeeded by an extensive epidermic exfoliation; the skin remains, for some time after, dry and harsh, and of a dull red colour.

This form of strophulus sometimes occurs upon the legs, and assumes a very painful and obstinate form. The eruption extends upwards along the thighs to the loins and abdomen, and produces a redness which is nearly continuous. The epidermis becomes dry, and cracks and separates in large flakes, leaving the integument beneath inflamed and rough. These symptoms, with considerable heat, pruritus, and irritation, may be prolonged for several months, or, as Willan remarks, they may continue until the infant completes its first year.

The constitutional symptoms of strophulus confertus, as of the preceding variety, are very slight, but the local pruritus is troublesome, and often severe. The disease is referrible for its cause to the irritation of teething, as is implied in its popular designation of *tooth-rash*.

#### STROPHULUS VOLATICUS.

337. This variety is characterized by the eruption of papulæ of a vivid red colour, in small circular clusters, which are scattered over the surface

of the body. Each cluster contains from three to twelve papulæ, which are hot, and attended with much itching. In a few days the inflammatory condition subsides, the pimples assume a brownish tint, and the eruption terminates by epidermic desquamation. More frequently, however, new patches appear as the older ones decline, and the disease may be prolonged for several weeks. The patches of strophulus volaticus are particularly observed on the cheeks and on the arms.

Strophulus volaticus is accompanied with general uneasiness and fretfulness, quick pulse, white tongue, and disordered bowels.

#### STROPHULUS ALBIDUS.

338. In strophulus albidus the pimples are white, and minute in size, each being surrounded by an areola of slight redness. They appear for the most part on the face, neck, and breast, and continue for a considerable time. They are not unfrequently intermingled with the red papulæ of the preceding varieties.

#### STROPHULUS CANDIDUS.

339. In this variety the papulæ are of larger size, and broader than in any of the preceding forms; they are hard, smooth, and tense, of a lighter colour than the surrounding skin, and without accompanying redness. The pimples are scattered irregularly over the body, but are most strongly developed on the arms, the shoulders, and the loins. They subside at the end of a week, and then gradually disappear. This eruption occurs most commonly in the latter periods of dentition, and is sometimes observed during convalescence from inflammatory disorders.

340. *Diagnosis.*—Strophulus is distinguished from other papular affections chiefly by its occurrence at the infantile period of life. The papulæ differ from those of prurigo by their colour and prominence, and they so closely resemble those of lichen as to appear identical with that disease. They are indeed modified only by the age of the subject in whom they are developed.

341. *Causes.*—Strophulus is generally due to gastric and intestinal irritation, and is frequently associated with the constitutional disturbance induced by dentition. It occasionally arises from local causes, as from deficient, irritating, or coarse clothing, want of cleanliness, excess of or improper food, heat, &c., and is usually developed in children possessing a delicate and irritable skin. The eruption often alternates with attacks of gastro-intestinal irritation.

342. *Prognosis.*—This eruption is wholly unattended with danger, and rarely presents any features of severity.

343. *Treatment.*—When the eruption obviously originates in local irritation, the acting cause should be removed, and frequent ablutions adopted. The tepid bath should be used frequently, together with emollient and sedative fomentations. The pruritus, which is so annoying a symptom in this eruption, may be relieved by a lotion of acetate of lead, or sulphate of zinc, by one containing acetic acid alone, lemon juice, salt and water, or almond emulsion. When the disease is associated with gastro-intestinal irritation, it is desirable to avoid the possibility of repel-

ling the cutaneous determination by cold applications, and where this has unfortunately been done, recourse must be immediately had to the warm bath, either simple or medicated with a handful of mustard.

When difficult dentition is the exciting cause, relief may be obtained by incising the gums. And if gastro-intestinal irritation be present, antacid and laxative remedies should be administered. Mercury with chalk, and rhubarb, are valuable medicines in this state of the alimentary canal.

## LICHEN.

344. Lichen is an eruption of minute conical papulæ occurring in the adult, and distributed upon a single region, or over the entire surface of the body. The pimples are comparable in size to millet seeds, they are reddish in colour, or scarcely different from the natural hue of the skin, and are attended with much itching and tingling. They are usually developed in clusters, and appear in single or successive eruptions. They are non-contagious, and terminate in resolution and furfuraceous desquamation, sometimes in superficial ulceration.

345. The appearance, situation, form, and severity of the disease, have given rise to its division into seven principal varieties—viz.,

Lichen simplex.	Lichen gyratus.
„ lividus.	„ urticatus.
„ pilaris.	„ tropicus.
„ circumscriptus.	„ agrius.

### LICHEN SIMPLEX.

346. In the simple form of lichen, the pimples are distributed irregularly over the surface affected, forming little patches from point to point, in which the papulæ are more numerously assembled than in neighbouring parts. Simple lichen is usually a chronic disorder, but occasionally presents itself in an acute form. The acute variety is preceded and accompanied by febrile symptoms, but these are very slight, and are referrible to the disordered state of the system, rather than to the cutaneous disease.

In the acute form of lichen, the eruption is ushered in by some degree of smarting and pruritus, which are increased towards night; the papulæ are red and inflamed, and they continue hot and itchy for several days. In the course of three or four days the redness begins to subside, the pruritus diminishes, and the papulæ decline; vanishing altogether at the end of a week or ten days, and being succeeded by furfuraceous desquamation of the epidermis.

In the chronic form of the disorder, the papulæ are less red and inflamed. Individually, they run the same course of about a week or ten days, but being followed by successive crops, the eruption is prolonged for several months, and even years. By the continuance of irritation, the skin becomes thickened, and throws off a copious furfuraceous desquamation, which is especially abundant in the flexures of joints.

Willan remarked some modification in the appearance of the papulæ,

according to the region in which they are developed. Thus on the face the papulæ are large and rounded in form; on the neck, trunk, and limbs, they are smaller, more vivid in colour, and acuminate, and on the hands they are somewhat paler than in other situations.

The ordinary seat of the acute variety of lichen simplex is the face and trunk of the body. The chronic form of the disease appears to attack by preference the backs of the hands, fore-arms, and arms; and it is not unfrequently met with on the lower limbs.

#### LICHEN LIVIDUS.

347. Lichen lividus is a form of lichen simplex, occurring in persons of weakly and debilitated constitution, or in those who are ill-fed, badly-clothed, and live in unhealthy and confined situations. This disease is occasionally met with among the squalid inmates of our workhouses at the period of admission; it is unaccompanied by constitutional disturbance. The papulæ in lichen lividus are soft and somewhat flattened, they present a purplish red or livid hue, are of longer continuance than those of simple lichen, and are developed on the arms and legs, but chiefly on the latter. They are sometimes intermingled with petechiæ, and small purple patches. The disease terminates by epidermic desquamation, and is frequently prolonged by successive eruptions for several months.

#### LICHEN PILARIS.

348. Lichen pilaris is a modification of lichen simplex, the pimples being developed around the pores by which the hairs issue from the skin. They are red and inflamed, extend deeply into the follicle, give rise to much tingling and itching, and are chronic in their course. The pimples usually decline at the end of a week or ten days, and terminate by furfuraceous desquamation of the epidermis, but the disease is prolonged by successive eruptions to several months or years. This form of lichen occurs under the same circumstances with the simple variety. It is seen in persons of unsound and irritable constitution, and is frequently coincident with disorder of the stomach and bowels. The abuse of spirituous drinks is a frequent cause of the eruption.

#### LICHEN CIRCUMSCRIPTUS.

349. Lichen circumscriptus differs from lichen simplex only in the mode of aggregation of the pimples. They are collected into one or several patches, of a circular or oval form, and bounded by a well-defined margin, consisting of the largest and most inflamed papulæ. The patches in the first instance appear as small aggregated clusters, which progressively increase by their circumference, while they fade in the centre, so as to form rings of variable size. Those which are most active in their increase, coalesce by their margins, and produce an irregular tracery of curved and broken lines. The areæ of the circles present a lightish red and yellowish tint, and become covered by a furfuraceous desquamation.

And as the first developed patches decline, others arise, and prolong the disease for several weeks. The eruption is most frequently seen on the fore-arm and back of the hand, on the flexure of the knee, and on the breast. Lichen circumscriptus is occasionally observed in association with vaccinia.

#### LICHEN GYRATUS.

350. Lichen gyratus, a variety described by Bielt, is a modification of lichen circumscriptus, and consists in the aggregation of the papulæ into one or several narrow and tortuous bands of variable length. Cazenave and Schedel, in their excellent treatise, observe, "We have lately seen an instance of this disease in the hospital Saint Louis; the papulæ, collected into little groups, formed a kind of riband, which, commencing on the front of the chest, curved downwards along the inner border of the arm, and continued onwards, precisely in the direction of the course of the ulnar nerve, to the little finger." Rayer remarks that he has seen it form "a kind of collar in front of the neck, extending from one ear across to the other.

#### LICHEN URTICATUS.

351. In lichen urticatus, a variety described by Bateman, the papulæ are of larger size than in other forms of the disease. They are inflamed and prominent, appear suddenly in a cluster of moderate size, and are accompanied by burning heat and considerable itching. The eruption is fleeting, frequently subsiding as rapidly as it appeared, and recurring at intervals. Its termination is succeeded by desquamation of the epidermis. Lichen urticatus is usually associated with slight febrile symptoms. The ordinary seat of its attack is the face and neck.

#### LICHEN TROPICUS.

352. Lichen tropicus, or prickly heat, is the usual form of this eruption, when it occurs in warm climates. Willin gives an excellent description of the disease, in a communication by Dr. Winterbottom. From this account the following passages are selected:—

"The prickly heat appears without any preceding disorder of the constitution. It consists of numerous papulæ, about the size of a small pin's head, and elevated so as to produce a considerable roughness of the skin. The papulæ are of a vivid red colour, and often exhibit an irregular form, two or three of them being in many places united together, but no redness or inflammation extends to the skin in the interstices of the papulæ."

"The eruption is diffused over those parts of the body which are usually covered, as the neck, breast, arms, legs, and inside the thighs. It does not often appear on the face, excepting on the upper part of the forehead contiguous to the hair; neither is it ever found in the palms of the hands, soles of the feet, nor on the hairy scalp. The number of the papulæ is much increased by wearing flannel, or clothes too warm and thick for the climate. When perspiration is very copious, small vesicles, containing a

limpid humour, are often intermingled with the prickly heat, more especially on the breast, and about the wrists; but they terminate in scales, having no disposition to ulcerate though violently scratched. A troublesome itching attends the prickly heat, and prevents sleep during the night. There is likewise a frequent sensation of pricking, as if a number of pins were piercing the skin. This often takes place suddenly after drinking a dish of tea, or any warm liquor, so as to cause the person affected to start from his seat. The eruption is in general stationary, and appears equally vivid in the day and in the night. It does not leave one part and arise on another, unless the former be much exposed to cold, and the latter be heated by additional clothing, or by friction. An increase of heat, indeed, in all cases, produces a greater number of papulæ. They sometimes disappear on a sudden, and return again as suddenly, without any obvious cause; but whenever the eruption continues for a length of time, the papulæ throw off minute scales, and are succeeded by a fresh crop, no vestiges being left in the skin. The prickly heat is in general considered as a salutary eruption, whence we are cautioned not to repel it from the skin by cold or other external applications. Such a repulsion cannot, however, be easily effected; it is certainly not produced by bathing, which has been hitherto thought highly prejudicial. A vivid eruption of the prickly heat is a proof that the person affected with it is in a good state of health, although its absence does not always indicate the contrary. The sudden disappearance of it, which frequently happens, is rather an effect than a cause of internal disorder, as of fever, or of any slight complaint of the stomach; in the latter case, a temporary stimulus applied to the stomach, as by spirits, tea, or other warm liquids, has the power of restoring the eruption. Its appearance on the skin of persons in a state of convalescence from fevers, &c., is always a favourable sign indicating the return of health and of vigour.

“Various means have been employed to alleviate the itching and tingling of the prickly heat; the favourite remedy at Sierra Leone is the juice of lime rubbed on the skin, which, however, has no considerable effect. I have found it of most advantage to use a light cool dress, and to avoid the drinking of warm liquors.”

353. Dr. James Johnson, who was a sufferer from the prickly heat, gives the following animated description of the disorder:—“This unwelcome guest assails us at all, and particularly the most unseasonable hours. Many a time have I been forced to spring from table, and abandon the repast which I had scarcely touched, to writhe about in the open air for a quarter of an hour; and often have I returned to the charge with no better success against my ignoble opponent. The night affords no asylum. For some weeks after arriving in India, I seldom could obtain more than an hour’s sleep at one time, before I was compelled to quit my couch with no small precipitation, and if there were any water at hand, to sluice it over me, for the purpose of allaying the inexpressible irritation. But this was productive of temporary relief only, and what was worse, a more violent paroxysm frequently succeeded.”

“The sensations arising from prickly heat are perfectly indescribable, being compounded of pricking, itching, tingling, and many other feelings for which I have no appropriate appellation.”

“It is usually, but not invariably, accompanied by an eruption of vivid red pimples, not larger in general than a pin’s head, which spread over the

breast, arms, thighs, neck, and occasionally along the forehead. This eruption often disappears in a great measure when we are sitting quiet, and the skin is cool, but no sooner do we use any exercise that brings out a perspiration, or swallow any warm or stimulating fluid, such as tea, soup, or wine, than the pimples become elevated, so as to be distinctly seen, and but too sensibly felt."

In reference to the imagined dangers of repelling this eruption, Dr. Johnson continues, "Indeed, I never saw it even repelled by the cold bath, and in my own case, as well as in many others, it seemed rather to aggravate the eruption and disagreeable sensations, especially during the glow which succeeded immersion. It certainly disappears suddenly sometimes on the accession of other diseases, but I never had reason to suppose that its disappearance occasioned them. I have tried lime-juice, hair-powder, and a variety of external applications, with little or no benefit, in short, the only means which I ever saw productive of any good effect in mitigating its violence, till the constitution got assimilated to the climate, were, light clothing, temperance in eating and drinking, avoiding all exercise in the heat of the day, open bowels, and last, not least, a determined resolution to resist with stoical apathy its first attacks. To sit quiet and unmoved under its pressure is undoubtedly no easy task, but if we can only muster up fortitude enough to bear with patience the first few minutes of the assault without being roused into motion, the enemy like the foiled tiger, will generally sneak, and leave us victorious for the time."

The author very truly observes, that an affection similar to lichen tropicus is sometimes seen during the summer season in this country. I have myself suffered from its annoying attack on one or two occasions, and can add my testimony to that of Dr. Johnson.

#### LICHEN AGRIUS.

354. Lichen agrius is the most severe form of lichenous disease; the papulæ are acuminate and prominent, of a vivid red colour, and numerous; they are aggregated into clusters of irregular form and size, are attended by much heat, smarting, and itching, and by a painful sensation of tension, and they are surrounded by considerable inflammation.

These symptoms continue to increase for several days, when the less inflamed papulæ diminish in redness, and become covered by a furfuraceous desquamation. The more inflamed papulæ, however, and especially those which are collected into clusters, have their points torn off by scratching, and form small superficial ulcerations, which pour forth a sero-purulent fluid, and this secretion desiccates into small yellowish crusts. The skin around the papulæ is at the same time thickened by the continuance of the inflammation, and fissured by deep cracks, from which a copious secretion exudes. In milder cases, the disease subsides before reaching this extreme, the redness and painful symptoms diminish, and the eruption dies away by the twelfth or fourteenth day.

In the severe form, as soon as the crust falls off and desquamation occurs, new papulæ are developed, which pursue the same course with their predecessors, and the disease is prolonged to several weeks, or even months; at other times, the eruption appears and disappears several times in succession before a cure is accomplished.

Lichen agrius is generally partial in its eruption, being confined to one



or more regions. It is most frequently seen upon the arms, the shoulders, and the loins, as also upon the chest and face. The itching and smarting are sometimes intolerable, and are much aggravated towards the evening, or by the warmth of bed,\* exercise, stimulating food and drinks, &c. Occasionally the papulæ are intermingled with small vesicles, which speedily burst, and terminate by desquamation.

The constitutional symptoms which precede and accompany lichen agrius are, rigors, flushes of heat, lassitude, pains in the limbs, headach, nausea, pain at the epigastrium, white, furred tongue, and quick pulse. These symptoms make their invasion for several days previously to the appearance of the cutaneous affection, and are, for the most part, relieved by its eruption. When the disease has been suddenly repelled by treatment or other cause, serious visceral disease has sometimes been established.

355. *Diagnosis.*—The diagnostic characters of lichen are, its solid and prominent pimples, the colouration of these pimples, and their attendant itching, which is of the tingling kind. The diseases with which it might by inattention be confounded, are the pruriginous affections: prurigo, scabies, and eczema. In prurigo, however, the papulæ are larger and flatter than those of lichen, being scarcely raised above the surface, and not distinguishable in colour from the surrounding skin; the pruritus is also different, being sharp and burning. The little black scabs, which surmount the papulæ of prurigo when torn by the nails, and the scratches by which the skin is marked, must also be borne in mind. Scabies resembles lichen only in the presence of itching, but this is different in its character; moreover, it may be remarked, that lichen selects by preference those parts of the body in which the dermis is thickest, as the back, the face, and the outer sides of the limbs, whilst the thinnest regions are those affected by scabies. Eczema, it will be recollected, is a vesicular eruption, and totally distinct from the solid papulæ of the disease under consideration. When the points of the papulæ of lichen are torn off, the crusts which succeed are more minute and thinner than those of eczema.

Lichen circumscriptus bears some resemblance, in the form of the patch, to erythema circinnatum and herpes circinnatus, but from these the diagnosis is by no means difficult. In erythema, the surface is smooth, and there is no trace of pimples, while in herpes, there are vesicles, or their detrita, and a greater degree of redness.

Lichen urticatus differs from urticaria, in the irregularity of form and size of the papulæ, their greater redness, and chronic character; and from erythema papulatum, by the small and irregular patches of the latter being merely papuloid, by their inferior degree of redness, and by the comparative absence of pruritus.

Lichen agrius is especially characterized by the close aggregation and highly-inflamed state of the pimples, by the severe smarting and tingling, by the superficial ulcerations, the fissures and chaps which so frequently form, and by the thickening and condensation of the integument.

356. *Causes.*—Lichen occurs principally in persons of nervous and irritable temperament, and at all periods of life. It is most frequently observed in the spring and summer season, and especially in the latter.

\* Mr. Plumbe remarks, that the parts smart for an hour or more as if they "had been severely scalded."

Increased temperature appears to have great influence in producing the disease, as we see evinced in lichen tropicus, or prickly heat; for the same reason, the eruption is frequently met with on the arms and face of persons employed near the fire, as of cooks and smiths. Local irritation is not unfrequently the cause, in persons of irritable skin, from the use of flannel or woollen raiment, or coarse body linen. Other exciting causes are, depressing moral or physical conditions, irregularities of diet, intemperate habits, &c. Sometimes it appears critically in fevers, and in acute or chronic visceral affections.

Lichen agrius would seem to be most frequent in females and young persons of sanguine or nervous temperament. It is usually referrible to fatigue, anxiety, stimulating food, and especially to spirituous drinks.

357. *Prognosis.*—Lichen is not dangerous to life, but is often exceedingly troublesome and intractable. That which originates from the more simple causes in young persons, and pursues an acute course, generally terminates in two or three weeks, but the chronic kinds may last for several years. Lichen of the face is especially obstinate and distressing.

358. *Treatment.*—In lichenous eruptions, the diet must be particularly attended to; the regimen should be moderate and cooling, and all stimulating food and drinks especially avoided. If the subject be plethoric, moderate bleeding must be adopted, particularly if the eruption be acute and general. In less extensive cases, gentle laxatives or remedies to act on the large intestine will usually suffice. Under all circumstances, every means must be employed to regulate the secretions, and restore the digestive functions to their healthful condition. When this is effected, the mineral acids should be administered, either alone or combined with tonics, as the state of health of the patient may indicate.

The external applications, in cases of lichen, are, cold or temperate baths, and emollient and soothing washes; warm baths and all stimulating remedies are highly objectionable. The best application for the relief of the pruritus is a weak lotion of acetic acid, or vinegar and water.

When the disease assumes a chronic form, stimulating substances, with a view to modify the action of the skin, are indicated; such applications are, weakly alkaline baths, the vapour douche, lotions of supersulphate of alumina, nitrate of silver or bichloride of mercury, ointments of the protochloride\* or deuto-ioduret of mercury,† sulphur, &c. The sulphureous bath is sometimes useful; and in very obstinate cases, where all the preceding measures have failed, the liquor arsenicalis may be tried. Mr. Plumbe thinks that the sulphur vapour bath might be found beneficial.

## PRURIGO.

359. Prurigo is a chronic and non-contagious affection of the skin, characterized by the eruption of papulæ, larger than those of lichen, not differing in colour from the surrounding integument, and attended with

\* ℞  
Hydrargyri protochloridi, ℥j.  
Camphoræ pulveris, ℥j.  
Adipis suillæ, ℥j.  
Ft. unguentum.

† ℞  
Hydrargyri deuto-iodureti, gr. x.  
Adipis suillæ, ℥j.  
Ft. unguentum.

an excessive and burning pruritus. At their decline, the papulæ leave behind them yellowish stains, and when scratched and abraded, they become covered with small black scabs. Prurigo is unaccompanied by constitutional symptoms.

360. The principal varieties of prurigo, as a general affection, are three in number; to which may be added several local forms. The general varieties are,

Prurigo mitis,  
 ,, formicans,  
 ,, senilis.

#### PRURIGO MITIS.

361. In the milder form of prurigo, the pimples are distinct, of small size, scarcely raised above the surface, and broader than those of lichen, soft and smooth to the touch, and of the same colour with the adjacent skin. They are accompanied by incessant itching, which is greatly increased by change of temperature, as upon the removal of the clothes in undressing, by the warmth of bed, and by exercise. When left to themselves, they subside, after a certain duration, and give rise to a slight exfoliation of the epidermis. More usually, the attempts to relieve the irritating pruritus by scratching cause the removal of the tops of the pimples, which then become covered by a small black and characteristic scab, formed by the desiccation of the minute drop of blood which oozes from the abraded surface. Occasionally the extreme irritation produced by this eruption gives rise to the development of ecthymatous pustules.

Prurigo mitis makes its appearance in the spring and summer months, without premonitory symptoms. It is developed upon every part of the surface of the body, but its more usual seat is the posterior surface of the trunk, the shoulders, the outer sides of the limbs, as of the arms and thighs, the chest, and sometimes the face. When the disease terminates mildly, it declines at the end of two or three weeks; at other times, fresh eruptions appear as soon as the original papulæ subside, and the affection is prolonged for several months.

#### PRURIGO FORMICANS.

362. Prurigo formicans is a severe degree of prurigo mitis, differing from the latter in the longer duration of the disease, and in the greater violence of the pruritus. The papulæ are occasionally more prominent and broader, and at other times more obscure than those of the simple variety. They are distributed over all parts of the body, with the exception of the face, the palms of the hands, and soles of the feet; but are most numerous upon the neck, the loins, and the thighs. The pruritus attending the eruption is incessant, frequently insupportable, and accompanied by a most distressing sensation, compared, by the sufferers, to having their flesh devoured by thousands of ants, or to the piercing of the skin with red hot needles. Rayer observes, that patients describing their sufferings speak of *heat of the blood, burning fires, mad-*

*dening itchiness, &c.\** The itching is increased by every alternation of temperature, particularly by the warmth of bed; so that patients affected by this disease tear themselves cruelly with their nails throughout the entire night, and are totally unable to sleep until, towards the morning, they sink from exhaustion into forgetfulness, or after a night of disturbed sleep, they are awaked with the first dawn by their unsparing tormentor. The violence of the scratching to which the sufferers so afflicted yield themselves, produces considerable redness of the skin, and by removing the heads of the papulæ, gives rise to the formation of numerous small black scabs; these little scabs, resulting from the oozing of a minute drop of blood from each of the wounded papulæ, are frequently the only appearance of the eruption. The disease is very tedious in duration, extending to several months, and sometimes, with intermissions, to years. At the termination of the disorder, the skin remains dry and thickened, and the epidermis exfoliates by furfuraceous desquamation.

Prurigo formicans is frequently associated with some visceral affection, in which case it may be preceded and accompanied by febrile disorder. When suddenly repelled, serious symptoms sometimes arise, and call for active treatment. The disease occurs both in children and adults, and at all seasons of the year.

#### PRURIGO SENILIS.

363. The prurigo of aged persons bears a close resemblance to prurigo formicans. The papulæ are of large size; they are hard and confluent, and attended with incessant itching. This disease is very tedious and obstinate, enduring for years, and producing dryness and a morbid thickening of the skin. The papulæ are intermingled with small black scabs, and numerous scratches made by the nails, in vain attempts to relieve the incessant pruritus.

In severe cases, write Cazenave and Schedel, "the skin becomes swollen and inflamed, eruptions of vesicles, pustules, and boils, appear, and sometimes abscesses are formed. Under such circumstances, there are frequently symptoms of fever, restlessness, and sleeplessness, and sometimes indications of gastro-intestinal irritation, &c. Finally, in these serious and excessively rebellious cases, the patient is tormented with dreadful itching." In one very severe case of prurigo senilis, Willan discovered a number of minute pulices upon the skin, and he remarks upon the frequent association of the pediculus vestimentorum with the eruption.

#### *Local varieties.*

364. The principal local varieties of prurigo are three in number: they are characterized by intense itching, and by the eruption of papulæ simi-

\* The Abbé Morellet was afflicted with this distressing disease at the advanced age of eighty years. It obliged him to rise several times in the course of the night, to sponge his body with vinegar and water, containing the acetate of lead. Writing to Alibert, he expressed himself as writhing on the "gril de St. Laurent." A soldier, affected with the same disease, compared his sufferings to being pierced all over with halberds. Alibert records several distinguished men among the afflicted with this persecuting malady, as Plato, Charles V., and Charles IX.

lar to those described as constituting the general affection. Willan describes under this head several other forms of distressing itching, which are unaccompanied by papulæ, and are ascribable to an altered sensibility of the cutaneous nerves. I have therefore thought it advisable to arrange the latter affections under the head of *pruritus*, and treat of them separately in a distinct section of the work. The local varieties of prurigo are,—

Prurigo podicis.  
 „ scroti.  
 „ pudendalis.

#### PRURIGO PODICIS.

365. Prurigo podicis consists in the eruption of papulæ similar to those of prurigo formicans, in considerable numbers, on the integument immediately around the anus, and upon the neighbouring regions of the perineum and thighs. The itching is severe and distressing, and increases at night, commencing shortly after the sufferer has retired to bed, and continuing incessantly for several hours. As a consequence of scratching, the papulæ become covered by minute black scabs, which serve as a diagnostic character. This disease is exceedingly obstinate, and unless relieved by treatment, will last for several months. After it has continued for some time, the integument becomes thickened and rough, and altered in its texture.

#### PRURIGO SCROTI.

366. Prurigo scroti is frequently an extension of the preceding disease; the papulæ are developed on the scrotum and root of the penis, and give rise to unappeasable itching. The patient, in making attempts to relieve the pruritus, often produces painful excoriations, which increase his misery.

#### PRURIGO PUDENDALIS.

367. Prurigo pudendalis is a most distressing disease, but, happily, one of unfrequent occurrence. The papulæ are situated chiefly on the labia majora, and mucous membrane of the vulva, but sometimes extend upwards along the vagina. The pruritus is generally constant, and so violent as to induce an unceasing necessity for friction with hard substances, or scratching. The continuance of the itching produces inflammation and swelling of the parts affected, and induces symptoms approaching to nymphomania.

368. *Diagnosis.*—Prurigo is distinguished from other papular eruptions by the absence of colouring in the papulæ, and by the burning pruritus which they occasion. These characters serve to render the diagnosis between prurigo and lichen very simple. The minute scabs which succeed the broken apices of the papulæ of prurigo are very similar to those of lichen simplex and scabies.

Prurigo cannot be confounded with scabies, when it is recollected that the signs of the latter are a ragged and undermined state of the epidermis, the presence of vesicles, and, above all, of the *acarus scabiei*. The pruritus of the two diseases, is also different; in prurigo it is burning and tingling,

and occurs in paroxysms, while in scabies it is constant and more supportable.

369. *Causes.*—Prurigo appears at all seasons of the year, and at all periods of life, being modified by its occurrence at certain ages. Thus, in children and adults, the first two varieties are most frequent, while in old persons and weakly children, prurigo senilis generally appears. It has been remarked that prurigo mitis is chiefly seen during the spring and summer months. The causes of prurigo, are, want of cleanliness, insufficient clothing, residence in unhealthy situations, amenorrhœa, dysmenorrhœa, uterine irritation associated with pregnancy, &c. Prurigo formicans is occasionally induced by the presence of visceral disease and mental affections of long continuance, improper and over-stimulating diet, stimulating drinks, deficient and improper food, &c. Prurigo senilis appears to depend upon debility of the system—a state which is popularly expressed by the term impoverished blood.

370. *Prognosis.*—Prurigo is often exceedingly obstinate, and resists every kind of treatment, and in old persons, by the continuance of irritating and unappeasable pruritus, may be destructive of life. In young persons and the adult it is not attended with danger.

371. *Treatment.*—The first point, and one of the most important in the treatment of prurigo, is the employment of baths, which should be used daily. The temperature of the baths should not be higher than seventy degrees, and they may consist of simple water with soap, the alkaline or sulphur bath. When the daily use of the alkaline or sulphur bath is found to irritate the skin, it should be alternated with the simple soap bath. A mucilaginous bath in some cases may be found advisable, and the cold water bath and sea-bathing may also be useful in restoring the tone of the nervous system and skin, and promoting recovery.

Observing the serious effects that sometimes result from the retrocession of prurigo, I was induced, in obstinate cases, to make trial of a stimulating liniment applied to the skin, after a previous course of tepid baths, and with the most beneficial results. The application which I use in these cases is croton oil, diluted with oil of almonds, in the proportion of half a drachm or a drachm to the ounce. I have also used iodine, both as a local and a general remedy, with good results, in cases of obstinate prurigo.

The applications best suited for the temporary relief of pruritus are, vinegar, weak solution of bichloride of mercury, tincture and watery solution of opium, creosote, ointment of opium with camphor, the diluted nitrate of mercury ointment, ointment of lime, lotion of muriate of ammonia, sulphuret of potash, chlorate of soda, &c. It is always necessary, as well as desirable, to have a number of anti-pruritic remedies at hand, for it frequently happens that one may be successful while all the rest fail, and it is constantly found that a remedy which may be perfectly effectual for this purpose in one case, may be utterly useless in the next; I therefore subjoin several formulæ recommended by French dermatologists, and quoted by M. Gibert:—

℞  
Hydrate of lime, ℥ij.  
Subcarbonate of soda,  
Laudanum, āā ℥ss.  
Lard, ℥j.  
M.

## Anti-pruriginous ointment recommended by Alibert:—

℞  
 Laudanum,  
 Sublimed sulphur, āā ℥ss.  
 Oxide of zinc, ℥j.  
 Oil of almonds, ℥j.  
 Lard, ℥ij.  
 M.

Ointment employed successfully by Biett for an obstinate prurigo of the hands:—

℞  
 Cinnabar,  
 Laudanum, āā ℥ij.  
 Sublimed sulphur, ℥ss.  
 Lard, ℥v.  
 M.

## Ointment for local prurigo:—

℞  
 Muriate of ammonia, ℥j.  
 Powder of white hellebore, ℥ss.  
 Lard, ℥ij.  
 M.

The general treatment of prurigo must consist of a light and cooling regimen, the avoidance of stimulating food and drinks, laxative medicines, diuretics, acid tonics, &c. Milk of sulphur in moderate doses night and morning, for two or three weeks, is sometimes found useful, particularly in the prurigo mitis of children. If the patient have a full pulse, and be plethoric, the loss of a quantity of blood proportioned to his strength is requisite, especially in cases of prurigo formicans. Indeed, I have seen bleeding in such cases act like a charm in allaying the unappeasable torture from which the patient was suffering. In prurigo senilis, a generous and nutritious diet is indicated, with occasional laxative and tonic medicines.

Prurigo podicis and prurigo scroti must be treated on the general principles stated above; in most cases, constitutional treatment is required. The local means for relieving the pruritus are especially needed in prurigo podicis and prurigo scroti, and in the former, abstraction of blood from the verge of the anus, by means of leeches, is frequently useful. Additional local applications are, cold poultices, or compresses, ice, cold hip-baths, gelatino-sulphureous baths, opium suppositories, cold cream, acetate of lead ointment, the dilute nitrate of mercury ointment, the yellow and black wash, chlorate of soda lotion, &c.

In prurigo pudendalis the local remedies recommended above will be found useful, and their use must be aided by general means, and by depletion, by leeches, from the vulva.

## CHAPTER VII.

## SQUAMOUS INFLAMMATION OF THE DERMIS.

372. UNDER the designation "Squamous inflammation of the dermis," I have assembled a group of diseases which are especially characterized by "inflammation of the dermis," and by the production of abnormal epidermis in the form of thin laminæ or scales. The diseases forming this group are three in number—namely,

Lepra.

Psoriasis.

Pityriasis.

373. All dermatologists since the time of Willan are agreed as to the close analogy between these diseases, and the only innovation which has been suggested with regard to them is that of combining lepra and psoriasis under a single genus. If any useful purpose were to be gained by this reunion, I would cheerfully record my vote in its favour, for the similarity of lepra and psoriasis in their essential nature is so complete as to render them almost identical. On the other hand, it may be fairly advanced, that the terms are so well understood that no error can arise out of their separate existence, that time has rendered them classic sounds, which could not well be dispensed with, and, moreover, that certain differences of moment are admitted between them, such as extent of surface occupied, duration, and severity.

374. The type of these affections is the development of a squama or scale. According to Willan, a squama or scale is "a lamina of morbid cuticle, hard, thickened, whitish, and opaque. Scales, when they increase into irregular layers, are denominated crusts." Willan was desirous of rendering the language of dermatology so precise, that no misunderstanding could possibly arise with regard to the exact signification of the terms employed, but his followers have not trodden in his footsteps, and even himself has shown some inconsistency. With the intention of superior precision, he limited the term crust to the layers of morbid epidermis developed in the scaly diseases. But at the present day we use it, somewhat loosely, to signify such collections on the surface of the skin as from their extent and thickness convey the impression of a mass greater than the acceptance usually assigned to the word scab. For instance, the thick, greenish-yellow concretion which forms in impetigo faciei, and covers the face like a mask, and which is truly a scab, we commonly call a crust, and Willan would seem to sanction the employment of the term in such a sense by retaining the ancient appellation of this disorder—*crusta lactea*.



375. In his order "Squamæ," in addition to the three before-mentioned diseases, Willan admits a fourth—namely, ichthyosis. In this arrangement he is decidedly in error, ichthyosis bears no analogy whatever with the leprous affections. There is no inflammation of the skin in ichthyosis, no production of scales of morbid epidermis, but simply an increase in the quantity of normal epidermis, dependent upon a state of hypertrophy of the papillary layer of the dermis. For this reason I have assigned to ichthyosis its more appropriate position among those affections which are induced by hypertrophy of the papillæ of the skin, and am corroborated in this view by the concurrence of Rayer and Dr. Thomson. Alibert still continues to consider the squamous affections under their ancient title, "herpes," and ranges them in his group of "dermatoses dartreuses," in association with acne, impetigo, and lupus.

## LEPRA.

Syn. *Alphos. Lepidosis. Dartre squammeuse.* Alibert.  
*Aussatz.* Germ.

376. Lepra is a noncontagious and chronic inflammation of the dermis, consisting in the eruption, on various parts of the body, of raised and circular patches, which are speedily covered by thin, semitransparent scales of white and morbid epidermis. The patches are prominent around their circumference, and somewhat depressed in the centre; they increase by the extension of their periphery, while the central area gradually returns to the natural state. During the progress of the patches, the scales are often thrown off, and are replaced by successive formations. The local disorder is unaccompanied by constitutional symptoms; it is most strongly marked in the neighbourhood of the knee and elbow joints, where it frequently forms continuous patches of large size, and it endures for a considerable length of time, sometimes recurring at particular periods for several years, and lasting for several months at each recurrence.

377. The varieties of lepra, with the exception of the syphilitic form, are mere modifications of the same disease, dependent on trivial circumstances; they are four in number,

Lepra vulgaris.  
" alphoides.

Lepra nigricans.  
" syphilitica.

## LEPRA VULGARIS.

Syn. *Dartre furfuracée arrondie. Herpes furfuraceus circinnatus.* Alibert.

378. Lepra vulgaris commences by small, smooth, and prominent spots of a dull red colour, usually in the neighbourhood of the knee and ankle joints, in the lower extremities, and of the elbows and wrists in the upper limbs. In the course of a day or two from their first appearance, the spots are covered with thin whitish scales. In three or four days they have increased in size by the extension of their circumference, which is raised and red, while the central area loses a portion of its redness and becomes depressed, the whole patch being covered by a laminated scale of moderate thickness. After increasing gradually in this manner to a size varying from that of a fourpenny piece to a half-crown, the eruption usually becomes stationary, excepting about the joints, and upon the scalp, where the circles

run into each other by their periphery, and form a continuous patch of large size. These large irregular patches are also produced occasionally in other situations. The scales of lepra are remarkable for their grayish white and silvery hue, being sometimes almost metallic in appearance. They are composed of thin lamellæ, which gradually increase in size from the centre to the circumference, so as to project beyond each other in an imbricated manner, a disposition which is marked on the surface of the scale by a series of concentric lines. When rubbed off by the attrition of dress, or thrown off spontaneously, they leave upon the skin a surface which is of a dull red colour and smooth in recent cases, and rough and furrowed when the disease has already existed for some time. After their fall, the thin crusts are speedily reproduced.

Lepra is rarely accompanied by constitutional symptoms, and is attended with very little local inconvenience, the latter not exceeding a slight degree of itching on getting warm in bed, or on exposure of the body to changes of temperature. When the patches are so extensive as almost or completely to surround a joint, they are productive of some degree of stiffness. The disease is slow in its march, and usually continues for years, sometimes for life, rarely getting well when left to itself.

The first patches of lepra appear about the knee or elbow joint, and often symmetrically on the two limbs at the same time. Willan signalizes a point immediately below the patella as the most frequent site of commencement of the disease. Extending from the knee, the patches appear in various points upon the leg as far as the ankle. Willan has remarked, as a peculiarity of lepra, that it invariably occurs in the situation of a superficial bone, as in the course of the tibia, of the crests of the iliac bones, &c., and rarely on the muscular parts, as upon the calves of the legs. The patches also proceed upwards towards the trunk, invading in their turn the upper parts of the limbs and the trunk of the body. Sometimes the disease attacks the scalp, and occasionally the pubic region.

When lepra affects the scalp it confines itself to the limit of the hair, extending for a short distance only upon the neighbouring skin. In this situation the disease is highly inconvenient, exciting such pruritus, and producing an irritation, which is increased by scratching, and followed by a morbid secretion. Nearly the same inconveniences attend the affection when it invades the pubic region, where, in the female, it is frequently accompanied by a distressing pruritus pudendi. When the ends of the fingers are the seat of lepra, the formation of the nails is disturbed; they are thickened and irregular in appearance, and a yellowish curdy matter is deposited beneath them.

As the patches of lepra decline, the central portion of the area resumes its healthy state, and ceases to produce scales. By degrees the scales upon the circumference of the patch become smaller and thinner, the prominence of the skin subsides, and the ring breaks at one or several points, the remains of the patches returning very slowly to the state of the neighbouring skin.

#### LEPRA ALPHOIDES.

Syn. *Weisse Aussatz*. Germ.

379. *Lepra alphoides* is a modified form of the typical lepra, characterized by an inferior degree of energy in the development of the eruption.

The patches are of small size, measuring only a few lines in diameter; the red spots upon which the scales are produced are hard and less red than in *lepra vulgaris*; they exhibit no disposition to spread, and the scales are whiter and more brilliant. This disease occurs for the most part in women and children.

The patches of *lepra alphoides* are less universally distributed than in *lepra vulgaris*; they are less frequently seen on the trunk of the body, and are often confined to the neighbourhood of joints. Moreover, they are slower in their progress than the patches of *lepra vulgaris* with which they are frequently intermingled, and they yield less easily to remedial treatment.

#### LEPRA NIGRICANS.

Syn. *Schwarze Aussatz*. Germ.

380. *Lepra nigricans* is the form sometimes assumed by *lepra*, when it occurs in persons of a languid and debilitated constitution. The form and distribution of the patches are the same as in common *lepra*, but they are not so large, and the central depression which marks the commencement of a curative process does not exist. The patches, instead of being of a dull red or rosy colour, are bluish and livid, and the scales thin, so that the lividity of the surface is seen through them. The scales are easily detached, leaving behind a tender, and, frequently, an excoriated surface, from which a morbid serous fluid, often mixed with blood, is poured out. This secretion hardens by degrees into an irregular and friable crust. *Lepra nigricans* is particularly inconvenient when it affects the scalp.

Willan observes that “the *lepra nigricans* affects soldiers, sailors, scullermen, stage-coachmen, butchers, brewers, labourers, and others whose occupations are attended with much fatigue, and expose them to cold and damp, and to a precarious or improper mode of diet. Women habituated to poor living and constant hard labour are also liable to this disease.”

#### LEPRA SYPHILITICA.

381. *Lepra syphilitica* resembles in all its characters the preceding variety, occurring in persons who have suffered from syphilis, and who have taken mercury for its cure. There is much reason for the belief that the *lepra nigricans* of Willan is simply the disease which we are now considering. The patches rarely exceed in size the diameter of a shilling, their surface is soft and pliable, and the scales are thin and white. The spots decline at the end of six or eight weeks, leaving behind them a red and coppery discolouration of the skin, which endures for a considerable time.

382. *Diagnosis*.—The pathognomic characters of *lepra* are, the perfectly circular form of the patches, together with their elevated border and depressed centre. Their circularity of form is traceable by means of two or three broken arcs of circles, even when a number of disks have run together and formed one continuous patch of large size. Psoriasis differs from these characters in the want of regularity of the patches, in

the absence of a depressed centre, in the less inflamed condition of the skin, and in the occasional presence of deep chaps and fissures.

*Lepra alphoides* is distinguished from *psoriasis guttata* by the somewhat larger size, the more decidedly circular form, the depressed centre, and the thicker crusts of the patches; while in *psoriasis guttata* the patches are very small, more prominent in the centre than at the circumference, and covered with thinner crusts.

*Lichen circumscriptus*, with its circular clusters of pimples fading towards the centre, may sometimes be mistaken for *lepra* in process of cure, but the identity of lichen is without difficulty established by the presence of a few marginal papulæ; whereas in *lepra*, the inflamed surface, denuded of its scales, is perfectly smooth.

383. *Causes*.—*Lepra* is a constitutional affection, occurring at all periods of life, often hereditary, and generally developed in persons having an habitually dry and harsh skin. In such persons the circulation is feeble, and the natural functions of the skin torpid. Hence, it is frequently developed in old persons, and in them is particularly obstinate. The occasional causes of this eruption are, long continued mental emotions; exposure to cold and moisture; deficiency, or poverty of food; highly stimulating food, and abuse of spirituous drinks; dry and salted provisions; game; the abuse of acids, &c.

384. *Prognosis*.—*Lepra* is at all times obstinate; in young persons and children it sometimes gets well spontaneously in the course of a few months, while in the aged, it often lasts for life. I have seen two cases illustrative of the counter-irritant influence of this disease; the one was a young man, in whom the eruption succeeded to epileptic fits, and seemed to act as the cure; the other was a gentleman of advanced age, in whom the sudden disappearance of a cluster of leprous disks from around the ankle, was immediately followed by a severe and intractable dysentery.

385. *Treatment*.—The first and most important indication in the treatment of *lepra* is, to speak theoretically, the restoration of the disturbed balance of the vital functions. This object is to be effected by a judicious and well-devised regimen; and that which is best suited to this disease, is one of a cooling and unexciting kind. Such a regimen will often cure the eruption without any aid from specific remedies. In truth, with the exception of their action as counter-irritants, the specific remedies for *lepra* derive their chief therapeutic virtues from the quietude, diet, and practice of ablution, by which their use is accompanied. The functions, moreover, require to be brought into healthful condition by means of laxatives, alteratives, or tonics, as the case may be. And where the strength of the patient will permit, benefit will be derived from the repeated abstraction of blood in small quantities from the system.

The internal remedies recommended for *lepra* are, a course of purgatives; bichloride of mercury in decoction of sarsaparilla, or dulcamara; hydriodate of potash; tincture of cantharides; liquor arsenicalis, carefully watched;\* liquor potassæ; sulphuric acid; decoctions of guaiacum, meze-reum, and elm bark; infusion of nettles; milk of sulphur, &c.

\* See note to § 294. The effects of arsenic on the leprous patches are to increase their redness, activity, and heat, in the first instance, and subsequently to diminish these symptoms, and render them brownish and dull. Arsenic calls for perseverance and regularity in its use, and must be continued for several months before a cure can be looked for.

Dr. Anthony Todd Thomson\* remarks—"I have found no combination of mercury equal to that with iodine, in the treatment of lepra. The biniodide, in doses of a sixth to a fourth of a grain, seems to exert almost a specific influence upon the morbid state of the skin; and when given at the same time as the iodide of arsenic, and aided by bloodletting, it has rarely failed in rapidly and permanently curing the most inveterate cases of the disease. As the acrimony of the preparation has sometimes greatly disturbed the alimentary canal, I have usually combined it, either with opium or conium, and I have always carefully avoided pushing it to ptyalism. Candour obliges me to admit, that as I have usually prescribed the biniodide in conjunction with the iodide of arsenic, it is difficult to say what share the mercurial had in the cures; and, in cases where idiosyncrasy prevented me from employing arsenicals in any form, I have seen the beneficial properties of the biniodide very obviously displayed."

Dr. Thomson prefers to the liquor arsenicalis as a remedy for lepra, the iodide of arsenic;† the dose of this medicine should not at first, exceed one-tenth of a grain; and in no instance has it admitted of being carried beyond one-third of a grain. "Its obvious effects are, quickness and hardness of the pulse, with slight puffiness of the lower eyelids; but, generally, before these symptoms of its influence display themselves, the disease has begun to yield." "The symptoms which indicate a necessity for reducing the dose are, heat of the mouth and fauces, and anxiety at the præcordia, with pain at the epigastrium, or griping. If besides these there is tension, with an uneasy sensation of stiffness around the eyes, and erythema of the face, thirst, a white tongue, with the edges and tip of a florid red hue, and a quick pulse, the use of the medicine should be suspended for some days. If nausea, cough, vertigo, or salivation, supervene, it should be left off altogether. The employment of any arsenical medicine is inadmissible, if it cause an uneasy sensation of the chest from the first." Iodide of arsenic is incompatible with cinchona in any form.

A triple compound of iodine, arsenic, and mercury, has been prepared by Mr. Donovan,‡ and recommended very strongly, on the credit of numerous successful cases, by several distinguished physicians of Dublin. The liquor hydriodatis arsenici et hydrargyri is exhibited in doses of half a drachm, three times a day for the adult. It is liable to give rise to headach and nausea, and sometimes to salivation, during its use, and on the occurrence of these symptoms it must be suspended for two or three days. The best vehicle for its exhibition is tincture of ginger, and it may be employed with advantage as a local application.

The mode of preparation of the liquor hydriodatis arsenici et hydrargyri is the following:§—Triturate of finely levigated metallic arsenic, 6.08 grains; mercury, 15.38 grains, and of iodine, 50 grains, with one drachm of alcohol, until the mass be dry, and changed in its colour, from a deep

\* Commentaries on Diseases of the Skin, &c., page 24.

† "As the iodide of arsenic," writes Dr. Thomson, "is not a pharmaceutal preparation, I subjoin the mode of preparing it. Take seventy-five grains and a half of metallic arsenic, and six hundred and thirty-one grains and a-half of pure dry iodine; rub them well together in a mortar, and sublime. The salt is thus obtained in the form of brick red, shining scales."

‡ Dublin Journal of Medical Science, Nov. 1839, Sept. 1840.

§ See Dublin Journal for November, 1839.

brown to a pale red. Next, triturate the mass for a few moments with eight ounces of distilled water, transfer the solution to a bottle, add to it half a drachm of hydriodic acid, and filter, making it up to it eight ounces, by means of distilled water, if there be any deficiency. The solution is of a golden yellow colour, and each drachm contains

Water . . . . .	3j.
Protoxide of arsenic . . . . .	gr. $\frac{1}{8}$ .
Protoxide of mercury . . . . .	gr. $\frac{1}{4}$ .
Iodine, converted into hydriodic acid . . . . .	gr. $\frac{4}{5}$ .

The local remedies are, lotions of sulphuret of potash, alkaline baths, vapour baths, and douches, sea-bathing, spirituous solution of bichloride of mercury, zinc ointment, white precipitate ointment, calomel ointment, nitrate of mercury ointment, ointments of acetate and phosphate of mercury, of sulphate and deutoxide of antimony, ioduret of sulphur ointment, from ten to twenty grains to the ounce, creosote, blisters, nitrate of silver, &c. M. Gibert speaks favourably of an ointment of the ioduret of ammonia, in the proportion of a drachm to an ounce; and also of the ointments of Anthracokali and Fuligokali. In the employment of these applications, care must be taken, in acute cases, to use them only after the reduction of the local excitement, by means of fomentations, emollient baths, &c., and then only of moderate strength. In chronic cases, however, they may be employed from the commencement, and in a more concentrated form, with the view of modifying the diseased structures.

“My own practice,” says a distinguished author\* on cutaneous diseases, “is to begin with the white precipitate ointment, or with that of the protochloride of mercury, unless in those cases where the disease is of very long standing, when I try the ioduret of sulphur in preference.”

M. Lemery, of St. Louis, has lately recalled the attention of practitioners to an old, but valuable application, in leprous affections—namely, *tar*. Finding, however, that this remedy was objectionable on account of its colour and odour, he had recourse to one of the products of tar, *concrete naphthaline*, which afforded him the most successful results. The preparation which he employs is an ointment, composed of

Napthaline . . . . .	two to four parts.
Lard . . . . .	thirty parts.

M.

This he applies to the diseased skin, on folds of linen, night and morning. The ointment is highly stimulating, and has a powerful smell, which quickly passes away. By means of the naphthaline ointment, M. Lemery succeeded in curing eight patients out of fourteen, in from five weeks to three months.

## PSORIASIS.

Syn. *Dry tetter. Dartre furfuracée. Kleinaussatz.* Germ.

386. Psoriasis is a chronic and noncontagious inflammation of the dermis, characterized by the development of patches, which are irregular

\* Rayet.

in size and form, and covered by thin, irregular, and whitish scales of desiccated epidermis. The patches are raised above the level of the surrounding skin; they are flat upon the surface, or somewhat more elevated in the centre than at the circumference, and are frequently intersected by deep fissures and chaps, particularly where the disease occupies a surface of large extent. Psoriasis may be general in its eruption, being dispersed over the entire surface of the body, or it may be purely local. The former is sometimes accompanied with slight constitutional disorder, and is liable to recur at certain seasons, as in the spring and autumn, for several successive years.

387. The varieties of psoriasis are founded on the form of the eruption, its intensity, and locality, the latter constituting a local group. In a tabular scheme, the varieties may be thus arranged:

*General varieties.*

Psoriasis guttata,	Psoriasis inveterata,
„ diffusa,	„ gyrata.
„ infantilis.	

*Local varieties.*

Psoriasis palpebrarum,	Psoriasis scrotalis,
„ labialis,	„ palmaris,
„ præputialis.	„ unguium.

PSORIASIS GUTTATA.

Syn. *Psoriasis discreta.* Rayer. *Dartre furfuracée arrondie.* Alibert.

388. Psoriasis guttata occurs in the form of small convex and scaly spots, raised above the surface, and varying in diameter from one-sixth to one-third of an inch. In general aspect the spots resemble a number of drops of water sprinkled upon the skin, whence the name applied to this form of disease by Willan. The spots are irregular in outline, and are distributed over all parts of the body, particularly on the dorsal aspect of the limbs and trunk, and upon the scalp and face. In the latter situation, they are rough and red, and usually deprived of scales. The eruption commences by small red papular elevations, upon the summit of each of which a small white and thin scale is soon developed. The papulæ advance quickly in growth, and the scales become larger and better defined, being reproduced as frequently as they are removed. The scales of psoriasis guttata are much thinner than those of lepra, they are more or less adherent to the surface of the elevated spot, and when rubbed off, the skin beneath is left smooth and shining. On the decline of the eruption, the affected skin retains a dark red, or bluish and yellowish stain, for one or two weeks. Some of the larger patches fade gradually from the centre towards the circumference, and assume the annular form presented by lepra during its progress towards cure.

The eruption of psoriasis guttata is sometimes, though rarely, preceded by symptoms indicating constitutional disorder. These symptoms, when they occur, are usually relieved by the outbreak of the eruption. In chil-

dren, the invasion of the disease with precursory febrile symptoms is frequent; the eruption extends over the whole body in the course of a very few days, and is equally rapid in its course. The local symptoms of psoriasis guttata are very trifling, rarely amounting to more than a little pruritus during the night.

Psoriasis guttata occasionally occurs as one form of secondary syphilis.

#### PSORIASIS DIFFUSA.

Syn. *Psoriasis confluens*. Rayer.

389. In the diffused variety of psoriasis the patches are of large size, very irregular in their form, and of variable extent. The surface of the patch is of a dull, red colour, rough, and elevated above the surrounding skin, intersected by deep furrows, which correspond with those of the epidermis, and generally fissured by several chaps of considerable depth. The patches are surmounted by numerous thin scales of dried epidermis, which are continually exfoliating, and giving place to new and successive layers. The chaps are dry, and covered by thin epidermic scales; they very rarely pour forth any secretion. The patches of psoriasis diffusa are developed in three principal modes; firstly, by a roughness of the epidermis and congestion of the subjacent dermis, to an extent corresponding with the size of the future patches; secondly, by a number of small elevations, like those of psoriasis guttata, which run together and form one continuously affected surface; and thirdly, by several small patches, which speedily increase in size, and coalesce. In each of these three modes, the patches are two or three weeks before they attain their complete growth; and it frequently happens that the eruption assumes the characters of the discreet variety over the greater part of the body, and of the diffused form around the joints.

Psoriasis diffusa presents several degrees of intensity and extent; it may occur as a single patch of small or large size, or there may be several. The disease may appear upon all parts of the body, but some it would seem to select by preference. I have seen the eruption most frequently on the fore-arms, or about the elbow and wrist. Unlike lepra, psoriasis affects chiefly the fleshy parts of the limbs. The duration of the psoriasis diffusa is always tedious; in milder cases it continues for several weeks or months; while in severer examples it may be intractable for a much longer period.

Several modified varieties of psoriasis diffusa occur in certain parts of the body as consequences of a local cause, in persons predisposed to this disease. One of these forms is the scaly eruption which commences on the knuckles of bakers, and thence extends to the backs of the hands, constituting the disease which is popularly designated *baker's itch*. Another is the scaly eruption of the wrists and fore-arms, intersected with chaps and fissures, which is observed in washerwomen. In both of these the skin is highly inflamed and painful, while the chaps are extensive and unattended with discharge. In an advanced stage of the baker's psoriasis, the surface is red and glossy, and scales cease to be produced.

Psoriasis diffusa, when extensive, is usually preceded by symptoms of



constitutional disturbance, such as pains in the head, pains in the stomach, loss of appetite, nausea, and general languor and debility. These symptoms subside as the local affection becomes developed, and return at each recurrence of the disease. The local symptoms are heat, some degree of pruritus, particularly at night, a sense of constriction, and, where chaps and fissures have formed, a little pain and tenderness.

## PSORIASIS INFANTILIS.

300. The term *infantilis* is applied by Willan to psoriasis diffusa, as it is occasionally seen in the infant, between two months and two years of age. The disease at this early period is very rapid in its progress, and more acute than in the adult. It is modified also by the greater susceptibility of the skin. The tettery surface is intersected by numerous chaps and fissures, and frequently excoriated to a greater or less extent by the friction of dress, or of contiguous surfaces. From these excoriations an ichorous secretion is poured out, which dries into hard scabs of considerable size. Other modifications of the infantile variety of psoriasis are, phlyzacious pustules, a morbid secretion from the mucous membrane of the nares, loss of the eyelashes and eyebrows when the orbital regions are affected, and the occurrence of hardened elevations, like those of psoriasis without the scales, either of the natural hue of the skin, or somewhat red, interspersed among the patches. When the latter eruption occurs about the anus, it frequently terminates in suppuration.

## PSORIASIS GYRATA.

391. Psoriasis gyrata is another modification of psoriasis diffusa; in this variety the eruption assumes the form of narrow bands, disposed longitudinally, or in variously curved and tortuous lines. The dull red and raised surface of the patches is intersected by numerous furrows, and covered with exceedingly delicate epidermic scales, which exfoliate repeatedly, and are as constantly reproduced. This eruption is attended with very trifling pruritus, and but little inconvenience. The disease occurs for the most part upon the trunk of the body, but sometimes on the arms and legs. Psoriasis gyrata is exceedingly rare; Bielt saw only two cases at St. Louis during his connexion with that hospital.

An annular form of psoriasis gyrata is occasionally seen upon the face and neck of delicate women and children. Two such cases have recently fallen under my observation.

Willan describes a syphilitic psoriasis as appearing in the gyrated form. The eruption in such cases presents the ordinary characters of syphilitic disease of the skin; it is dark-coloured and smooth, presents but few scales, and assumes, as it subsides, a copper-coloured tint.

## PSORIASIS INVETERATA.

Syn. *Dartre squameuse lichénoïde*. Alibert.

392. Psoriasis inveterata is the most severe and obstinate of all the forms of scaly tetter, and may be regarded as an intense degree of psoriasis.

riasis diffusa. It extends over a considerable surface, usually occupying the entire of the limbs, but sometimes spreading over the whole body, with the exception of the palms of the hands, the soles of the feet, and the face. The skin in this variety is thickened, congested, and hot, and there is constant pruritus, which is increased, and very troublesome during the night. It is, moreover, dry, harsh, stiff, deeply fissured by cracks and chaps, and covered by epidermic scabs, which are produced and thrown off in great abundance. The harshness and thickening of the integument are sometimes so great as to interfere with the action of the muscles, and movements of the joints. When the surface is abraded by pressure, by the violent use of the nails, or by any other cause, a profuse discharge is set up, which concretes into dry scabs of variable size.

Psoriasis inveterata presents certain peculiarities in different parts of the body; thus, on the scalp, the scales collect in great number, and when removed, are succeeded by a fœtid ichorous secretion. When the nails are affected, they become yellow, thick, and irregular; they are subsequently thrown off, and replaced by shapeless crusts.

The duration of psoriasis inveterata is indeterminate; it usually lasts for several years, and in old persons for the rest of life.

The constitutional symptoms accompanying psoriasis inveterata are generally very trifling, consisting merely in some degree of gastro-intestinal irritation. At other times, no trace of constitutional disturbance can be observed.

### *Local Varieties.*

#### PSORIASIS PALPEBRARUM.

393. Psoriasis palpebrarum is a chronic inflammation of the integument of the eyelids, which commences at their outer angles, and extends inwards towards the inner canthus. The surface of the diseased skin is red, shining, and chapped, and covered by thin epidermic scales. The disease is attended with troublesome itching, it produces thickening of the skin, which renders the lids rigid, and interferes with their movements, and when the inflammatory action is propagated to the conjunctiva palpebrarum, there is a constant effusion of tears. When psoriasis palpebrarum has continued for a long period, the conjunctiva oculi is liable to become affected, in which case the disease is exceedingly intractable.

Psoriasis palpebrarum may be purely local in its origin, or it may result from an extension of the psoriasis diffusa already affecting the face.

#### PSORIASIS LABIALIS.

394. This variety occurs around the lips, often to the extent of an inch, and more frequently upon the lower than the upper lip. It is constituted by thickening, scaliness, redness, and puckering of the integument, the puckered appearance depending on the presence of deep furrows, which converge towards the mouth, and are the seat of painful chaps and fissures. The scales are of small size; they exfoliate constantly, leaving the skin red and tender, but are speedily succeeded by a renewed crop. The disease is by no means common, it occurs and continues through all seasons, and is tedious in its duration, extending to months and often to

years. Willan remarks, in reference to psoriasis labialis, that “in a man who had it for thirty years, I observed that the gums and inside of the upper lip were considerably corroded, and that his arms were covered by a thick incrustation.”

#### PSORIASIS PRÆPUTII.

395. This disease resembles in every respect the foregoing variety; the prepuce is red, thickened, covered by thin scales, and fissured by chaps. The disease is exceedingly painful and obstinate, bleeding whenever an attempt is made to draw back the prepuce, and giving rise eventually to phymosis. Psoriasis præputii often occurs alone, sometimes it is complicated with psoriasis scrotalis, and occasionally is coincident with psoriasis palmaris.

#### PSORIASIS SCROTALIS ET PUDENDALIS.

396. Psoriasis scrotalis is attended with much heat, pruritus, and thickening of the integument of the scrotum. The heat and pruritus are greatly augmented by change of temperature, and particularly by the warmth of bed. The affected skin becomes harsh and dry; it is traversed by chaps and fissures of considerable length, and the disorder is frequently aggravated by extensive excoriations, which secrete an ichorous fluid. Psoriasis scrotalis occurs usually in the spring and autumn; it is exceedingly painful and troublesome, and endures for a lengthened period. It is sometimes the consequence of the continued irritation of prurigo.

Psoriasis pudendalis is an analogous disease to the preceding, affecting the labia majora of the female, and giving rise to distressing suffering and annoyance.

#### PSORIASIS PALMARIS.

397. Psoriasis palmaris is a variety of the diffused tetter, which is limited to the palmar surface of the hands, the fingers, and the wrists. It makes its appearance by one or several elevated patches of large size, which increase in breadth, and spread over the entire palm, extending upwards upon the wrist, and downwards on the fingers. The patches are of a dull red colour, hot, and painful; they are attended by troublesome itching, and by a distressing sensation of pricking and tingling. Soon after their eruption, the patches become covered with dry epidermic scales, which speedily increase in number and thickness, and cover the entire of the diseased surface. As the disease progresses, the epidermis becomes exceedingly dry and hard, it cracks in the direction of the natural furrows of the hand, and exhibits at the bottoms of these furrows chaps and fissures in the dermis of variable depth and extent. The thickening of the skin consequent on the inflammatory action gives rise to much pain and stiffness in extending the hand, and any sudden movement is accompanied by bleeding.

398. Another variety of psoriasis palmaris has been designated by Rayer, *centrifuga*; it is characterized by the development of a single elevated spot of small size near the centre of the palm of the hand, upon which a small thin scale is formed. Around this elevation a series of

eccentric red circles are successively produced, each circle being surmounted by a fresh epidermic scale. In this manner the disease spreads more or less rapidly over the palmar surface of the hand. The integument is red, thickened, and fissured by numerous deep chaps, which bleed frequently, and the entire hand is rendered stiff and painful.

Psoriasis palmaris is very slow in its course, enduring for several months, and sometimes for years, or declining during the summer and autumn season to reappear successively in the winter or spring, for a number of years. It occasionally attacks the soles of the feet, but in this situation the severity of the symptoms is mitigated by the protective coverings of the part, and the fissures are consequently much smaller, or fail to occur. Psoriasis palmaris is sometimes coincident in females with psoriasis pudendalis, and in males with psoriasis præputialis.

#### PSORIASIS UNGUIUM.

399. Whenever psoriasis diffusa extends to the extremities of the fingers, the nails are considerably altered by the disease. Sometimes, as Willan has observed, the affection of the nails occurs alone, in which case scaly patches are frequently developed on other parts of the body, as upon the wrists and arms. The nails, when diseased, are altered in their colour, becoming yellowish and tawny; they are thick and irregular in structure, and rough and ragged at their extremities, being not unfrequently bent downwards over the ends of the fingers.

400. *Diagnosis.*—Psoriasis presents the closest analogy to lepra—an analogy which approaches to, if it be not in truth, identity, as far as the essential nature of the disease is concerned; but in respect of external character there are certain striking differences. Indeed, it not unfrequently happens, that in the same person the disease assumes in one part of the body the characters of lepra, and in others, those of psoriasis; or that lepra of long continuance, and improperly treated, degenerates into psoriasis inveterata.

Comparing the two affections, we find that in *lepra* the patches are circular, depressed in the centre with elevated margins, and covered with moderately thick, and but slightly adherent scales, while in psoriasis the patches are irregular, not depressed in the centre, and covered with thinner and more adherent scales. The form of psoriasis, which most nearly approaches to lepra, and which constitutes the transition link between the two diseases, is psoriasis guttata. Psoriasis guttata might easily be mistaken for lepra alphoides, unless we recollect the differences of form and size, the central concavity of the one and convexity of the other, and the appearance of the scales, which are brilliantly white and imbricated in lepra alphoides, and thin and dull, of the ordinary hue of dried epidermis, in the other.

Pityriasis is another scaly affection with which psoriasis might be confounded; indeed, I am disposed to agree with Rayer, that Willan has not sufficiently distinguished certain varieties of psoriasis palpebrarum and labialis from pityriasis. The distinction between the two diseases lies chiefly in the depth of affection of the skin; thus in psoriasis the morbid patch is always raised above the level of the surrounding skin, while in pityriasis there is no such elevation, the integument being simply con-

gested. Another difference is remarked in relation to the size and appearance of the scales, for in psoriasis the scales are larger and thicker; the epidermic exfoliation in pityriasis being merely a furfuraceous desquamation. Moreover, the integument in psoriasis is always more or less deeply chapped and fissured, which is rarely the case in pityriasis.

401. *Causes.*—Psoriasis is not unfrequently hereditary in its origin; it may occur in both sexes and at all ages, but is most common in the adult and in females. It usually makes its appearance in the spring and autumn, and follows upon a variety of exciting causes, such as mental emotions, irregularities in diet, salted food, deficiency of nourishment, exposure to cold, chlorosis, arthritic affections, gastro-intestinal irritation, or some constitutional indisposition, drinking cold fluid when the body is heated, &c. The disease appears for the most part in those who are remarkable for dryness of the skin.

The exciting causes of the local varieties of psoriasis are irritants applied to the surface of the skin, such as flour, in that form of the disease which affects the backs of the hands in bakers, soap in the case of washerwomen, &c. In like manner we find it remarked by Willan, that “shoemakers are subject to this complaint from the irritation of the wax they so constantly employ. In braziers, tinmen, silversmiths, &c. it seems to be produced by handling cold metals. A long predisposition to it from a weak, languid, hectic state of the constitution, may give effect to different occasional causes. I have observed it in women after lying in; in some persons it alternates with arthritic complaints.” Sometimes the disease appears to result from the irritation of other local cutaneous disorders, such as prurigo, lichen, eczema, &c.

Psoriasis is unquestionably noncontagious, but Willan has observed that the psoriasis guttata and the annular form of psoriasis gyrata “affect several children at the same time in large families and in schools, especially those who sleep together.” I have had occasion to make the same remark with regard to the latter complaint.

402. *Prognosis.*—Psoriasis is at all times and under all forms a very troublesome, and often an intractable disease, but is rarely dangerous to life. Psoriasis guttata is that form of the affection which yields most easily to treatment, and psoriasis inveterata is so unmanageable as to deserve to be considered incurable.

403. *Treatment.*—The observations previously made with regard to the treatment of the allied affection lepra, are strictly applicable to psoriasis, the treatment required in both is identical. In this disease, baths, particularly the vapour bath and douche, are of the utmost importance.

Several cases of psoriasis have followed the employment of the liquor hydriodatis arsenici et hydrargyri. Dr. Graves\* records a case of severe psoriasis in the adult, that was cured within three months by the exhibition of half a drachm of this solution, taken three times a day. The patient took in all one hundred and fourteen doses—that is, seven ounces and one drachm, containing seven grains of arsenic, fourteen grains of the protoxide of mercury, and forty-four grains of iodine. He was obliged to suspend the medicine for two or three days on two occasions.

Dr. Elliotson† succeeded in curing a case of psoriasis inveterata by

\* Dublin Journal, September, 1840.

† Lancet, vol. viii.

bleeding and wine of colchicum, in half-drachm doses, given three times a day. The patient was a man of full habit of body.

For allaying the irritability of mucous membrane that so frequently accompanies psoriasis, Dr. Thomson recommends very warmly the liquor potassæ in conjunction with diluted hydrocyanic acid, and administered in the emulsion of bitter almonds; the commencing dose of the alkali should be thirty drops twice a day, and this should be increased to as large a quantity as the stomach will bear. If the patient be weakly, it may be taken in infusion of cinchona or cascarilla.

Whenever the cause of the disease is obvious, it must instantly be removed, especially in the local varieties, for it would be unreasonable to expect the cure of a disorder when the causes producing that disorder are still in activity. This remark applies especially to the psoriasis of bakers, washerwomen, and handicraftsmen generally.

When the disease is obstinate, and resists all our measures, the more powerful of the local remedies may be employed with the view of modifying the action of the diseased skin. With this object, in the more rebellious forms, Rayer recommends the use of the tartarized antimony ointment. The same author, after commenting on the dangers attendant on the internal use of cantharides and arsenic, makes the following judicious observations:—"It is undeniable that by means of these active medicines several of the varieties of psoriasis, even the most inveterate, have been cured; but it is no less certain, that the majority of the cures thus accomplished have been but temporary, relapses having occurred the following spring or autumn; that such relapses are more especially frequent among the labouring classes of the community; and lastly, that the greater number of cases of psoriasis inveterata treated by such means have been in nowise amended, although the medicines were continued for five or six months. I am therefore of opinion, that it is, in general, inexpedient to put patients affected with psoriasis inveterata upon an arsenical course, in the faint hope of deriving a mere temporary improvement, with the fear before our eyes of inducing some obstinate derangements of the digestive organs, or of permanently injuring the general constitution."

In psoriasis palpebrarum, the best remedies are a weak solution of nitrate of silver, a lotion of sulphate of zinc, the diluted nitrate of mercury ointment, the calomel ointment, zinc ointment, &c. I have found the latter especially serviceable in psoriasis labialis, præputialis, scrotalis, and pudendalis. In psoriasis palmaris, in the chronic state, I have succeeded in effecting a cure, by modifying the surface with a spirituous lotion of bichloride of mercury, followed by water dressing; nitric acid has also been used successfully with the same object.\*

### PITYRIASIS.

Syn. *Dartre furfuracée*. *Herpes furfuraceus*. Alibert.—*Schuppen*,  
Germ. *Dandriff*.

404. Pityriasis† is a chronic inflammation of the skin, which is characterized by the production of minute white scales in great abundance, on

\* Lancet, vol. x., 1826, p. 416.

† Der. *πιτυριον*, chaff, from the chaff-like desquamation by which it is attended.

patches of irregular form, and variable dimensions. The patches are of a dull red colour, but sometimes so light as scarcely to be distinguishable from the surrounding skin. They are developed on all parts of the body, frequently in succession, and are attended with heat and considerable pruritus and tingling. The scales are thrown off as soon as formed, and are reproduced with great rapidity; they are for the most part small and micaceous; in certain situations, however, where the integument is thick, they are large and lamellar, and in those parts where the integument is thin, as in the flexures of joints, are pulverulent and mealy. Pityriasis is a disease of long continuance, but is not contagious.

405. The varieties presented by pityriasis are distinguishable into general and local; of the former, Willan enumerated three, and of the latter, one. The general varieties of Willan are, pityriasis rubra, pityriasis versicolor, and pityriasis nigra; the first of these, alone, deserves to be considered as a squamous disease; the other two are remarkable for their alteration of colour, rather than for the scales which they produce, and are consequently referrible to the chromatogenous disorders.\* I shall therefore describe the general affection under the generic designation, Pityriasis. The local variety indicated by Willan is pityriasis capitis; to which Rayer has added, pityriasis palpebrarum, labrum, palmaris et plantaris, præputialis, pudendalis, and pityriasis oris. In a tabular form, the local varieties are,

Pityriasis capitis,
„ palpebrarum,
„ labiorum,
„ palmaris et plantaris,
„ præputialis,
„ pudendalis,
„ oris.

## PITYRIASIS SIMPLEX.

406. Pityriasis simplex occurs indiscriminately upon all parts of the body, but particularly in the flexures of the skin, and on those regions which are exposed to the influence of the air, as the face and hands. It is distinguished by the eruption of red (pityriasis rubra, Willan) superficial patches, upon which the scales are produced, at first in small number, so as to give rise to some degree of roughness only, but subsequently in large quantities. This affection is very commonly met with, in children and persons possessing a delicate skin and fair complexion, upon the sides of the chin, around the mouth, and on the forehead. When extensive in its attack, pityriasis is attended by excessive itching and tingling, more particularly at bed-time, and during the night. By successive eruption on different parts of the body, the disease may gradually extend over the entire cutaneous surface, disappearing in some parts, while it breaks forth in others. In this manner it is frequently prolonged for months, and is very

\* After writing the above, I was much pleased to read in Rayer the following passage, in speaking of pityriasis versicolor and nigra:—"diseases which I have felt called upon to transfer to another order, that merely of the adventitious pigmentary discolourations."

obstinate; the subcutaneous cellular tissue is apt to become thickened and infiltrated, and if the surface be abraded by scratching, an ichorous fluid is poured out which desiccates into thin scabs, and complicates the diagnosis of the disease. After the decline of pityriasis, the skin presents for some time a yellowish stain. When the disease is general, or a large surface of the body is implicated, the eruption is sometimes accompanied with languor and slight constitutional disturbance.

#### PITYRIASIS CAPITIS.

Syn. *Dandriff*.

407. Pityriasis capitis appears upon the head chiefly in children and old persons, commencing usually upon the temples, and around the forehead, and thence extending to the rest of the scalp. It is a troublesome affection, attended with much itching, and, at its first invasion, with some degree of redness, which gradually disappears, and leaves the integument whiter than its natural hue. Occasionally it extends to the eyebrows, the whiskers, and the beard. Pityriasis may continue for months and even for years, particularly in old persons; and in severe cases, may be accompanied by an ichorous discharge, which agglutinates the hairs, and produces one form of that appearance denominated by Alibert, "teigne amientacée."

#### PITYRIASIS PALPEBRARUM.

408. Pityriasis palpebrarum may exist independently of the appearance of the disease in other parts of the body. It is not noticed by Willan as a separate affection, and is probably included in his description of psoriasis palpebrarum. It is characterized by the dull red, and abundant scaliness of the typical pityriasis without thickening, or with but trifling thickening of the lids, without elevations of the surface, and without chaps and cracks. It generally occasions the fall of the eyelashes, and frequently spreads to the conjunctiva, producing chronic thickening of that membrane.

#### PITYRIASIS LABIORUM.

409. "Pityriasis labiorum," says Rayer, "is a variety that has hitherto been confounded with psoriasis, a disease, however, from which it differs in being evolved on the lips and surrounding skin, not as papular elevations followed by thick squamæ, but under the semblance of minute red stains, to which succeed a general redness, and a continual desquamation of the epithelium of the lips, and occasionally of the cuticle of the neighbouring skin." In this affection, the lips are hot and swollen, and constantly throw off a desquamation of dry epithelium and epidermis, leaving the skin beneath red and tender. On the mucous membrane of the prolabium, the exfoliation is produced in thin lamellæ, which remain partially adherent for some time, and are then thrown off, while on the skin around the lips the desquamation is furfuraceous and mealy. Pityriasis labiorum is exceedingly obstinate and intractable: Rayer remarks that he has seen two cases of this disease; I have seen one, which has lasted for years, and appears to be incurable.



## PITYRIASIS PALMARIS ET PLANTARIS.

410. Rayer remarks, that pityriasis palmaris and plantaris have hitherto been confounded with psoriasis in these regions; certainly there is sufficient difference between the two to obviate the risk of such confusion, if the diseases be carefully examined. I have seen two cases of this affection, the one in the soles of the feet, the other in the palms of the hands. The former of these was particularly distressing; there was constant and intolerable heat, with painful tingling and tenderness of the inflamed parts, and the epidermis was constantly thrown off in laminæ of variable size. The heat was sufficiently unpleasant during the day, but at night it deprived my patient of rest; he always lay in bed with his feet uncovered, and he was under the necessity of rising repeatedly to stand upon the cold floor, and bathe his feet in cold water. I regret to add, that I was unable to benefit this gentleman, and he returned to the country unrelied.

## PITYRIASIS PRÆPUTIALIS.

411. This affection is very troublesome, and is apt to give rise to phymosis. I have seen one case of phymosis produced by this disease. The characters of the disorder are similar to those of the general affection.

## PITYRIASIS PUDENDALIS.

412. Pityriasis pudendalis, like all pruritic disorders in this region, is excessively annoying. The inflammation generally extends to the mucous membrane of the vulva, and is very intractable.

## PITYRIASIS ORIS.

413. This variety, like the preceding, rests upon the authority of Rayer, who says, with regard to it—"I have observed the inside of the mouth affected with chronic inflammation and habitual desquamation of the epithelium, especially about the base of the tongue, without any antecedent or concomitant affection of the pharynx, stomach, or lungs—pityriasis oris. This state continued during five or six years, with but brief intermissions, the principal functions being all the while performed with great regularity. At the time a desquamation of this kind was going on, one patient complained of heat, and often of painful sensations, difficult to define, in the interior of the mouth. In a woman who was similarly situated, almost the whole of the mucous membrane of the mouth was habitually of a grayish-white colour, and when the epithelium was thrown off from the tongue, its surface presented several patches of a bright red colour, which continued until the investing membrane was either formed anew, or again rendered thick and opaque."

414. *Diagnosis.*—The chief diagnostic characters of pityriasis are, the copious production of epidermic scales, the erythematous redness of the skin, and the troublesome pruritus. These characters serve to distinguish it from the yellow sebaceous crusts seen in newly-born children, and remaining adherent to the skin for several weeks. The same signs

also serve to distinguish it from simple desquamation of the epidermis, and from psoriasis.

In psoriasis, it must be recollected that the skin is raised in tubercular elevations, upon the summits of which the scales are produced; the scales also are thicker and larger; there is, besides, frequent chapping of the skin, and less pruritus. The same characters serve to mark the difference between an alteration of the pigment of the skin, attended with moderate desquamation; and a profuse production of epidermic scales, without discolouration.

415. *Causes*.—Pityriasis probably owes its origin to some unknown modification of innervation of the cutaneous textures, and is developed for the most part in persons remarkable for the delicacy and susceptibility of their skin. As a general affection, it is more commonly met with in females than in males, and in the aged than in the adult. The local form so frequently seen on the face is often produced by the evaporation caused by cold winds, by chills produced in the same manner, by the irritation of soap, shaving, &c. Sometimes the disease appears to result from irritation of the gastro-pulmonary mucous membrane.

416. *Prognosis*.—General pityriasis is a very obstinate, but, happily, a rare disease. It frequently resists all treatment, and in one instance Rayer saw it terminate fatally. The local forms are also intractable, but not dangerous, and they are very apt to recur at intervals.

417. *Treatment*.—In general pityriasis, if the patient be strong and robust, blood may be taken from the arm, and followed up by antiphlogistic remedies and regimen. The local disorder is to be treated by emollient baths, fomentations, alkaline baths, and opium to lull the pruritus. Dr. Thomson remarks that he found the following lotion—

℞  
 Potassæ liquoris, ℥j.  
 Hydrocyanici acidi diluti, ℥j.  
 Misturæ amygdalæ amaræ, ℥vij.  
 M.

more useful in quelling the pruritis than those containing either the biborate of soda, or alum, or the acetate of lead. Sedatives are often required to diminish the gastro-intestinal irritation and diarrhœa which so frequently accompany pityriasis. Tonics and alteratives are frequently indicated, and great benefit is often obtained from a course of alkalies, or of the hydriodate of potassa. The following remark by Rayer is deserving of attentive consideration:—"But it is with general pityriasis, as with almost the whole of the chronic diseases of the skin, that are independent of appreciable causes; a solid and enduring cure is only to be obtained by a general change of the constitution, brought about by the dietetic means, long and regularly pursued, effected naturally by the progress of years, and the modifications undergone by the organization, or accidentally induced by some intervening disease, such as measles, scarlatina, &c."

Local pityriasis, when severe, demands the same constitutional treatment as the general form, and if convenient, the local abstraction of blood. The local disease, when it affects the scalp, requires the closest attention to cleanliness, and this, indeed, will frequently be sufficient for its cure. The hair should be removed, and when the inflammatory action is subdued, some weakly stimulating application may be used to the surface,

such as an alkaline lotion, a drachm of liquor potassæ to half a pint of emulsion of bitter almonds, camphor spirit, or a weak solution of bichloride of mercury. A solution of bichloride of mercury, in emulsion of bitter almonds, in the proportion of two or three grains to the half pint, is the application best suited for patches on the face; and the zinc ointment for pityriasis palpebrarum, præputialis, and pudendalis. The vapour douche, with the white precipitate ointment, are the remedies most likely to be useful in pityriasis palmaris et plantaris.

## CHAPTER VIII.

## INFLAMMATION OF THE DERMIS INDUCED BY PARASITIC ANIMALCULES INHABITING THE EPIDERMIS.

418. To this division one disease alone is established to belong—viz.,

## SCABIES.

The preceding groups of diseases, whether they originate in a local or a general cause, depend upon some pathological condition of the nerves and vessels of the system, or of the part affected. As a consequence of this pathological condition, we may have inflammation of the dermis in the various forms hereinbefore discussed—namely, congestive, effusive, suppurative, or squamous. The present group differs from the rest in obeying a specific cause, which may be present without exciting any general or local disorder of the nervous or vascular system, the seat of the cause being the extra-neurous and extra-vascular epidermis. When, however, the cause has been present for a certain period, varying with its number and with the temperament of the individual, we find such local effects produced as would result from the presence of the most common irritant. In the first instance, there is simple excitation of the peripheral nerves, giving rise to pruritus; next, there may be congestion of the capillary vessels; thirdly, there may be effusion of transparent lymph beneath the epidermis, constituting vesicles; and lastly, there may be suppuration, and the formation of pustules; each of these stages following an ascending grade of irritation; the degree in which the irritation is evinced depending in a greater measure on the temperament of the individual than upon the quantity of the cause.

Guided by the Willanean classification alone, we should be led, seeing the alterations above described, in their first stage, to refer the disease to that group which includes erythema; in its second degree of severity, we might follow the example of all the dermatologists of the present day, and regard it as a vesicular disease, while in the highest and less frequent form of aggravation we should place it, as did Willan, among the pustules. It is clear, from the differences of such distinguished men, that any attempt to deduce its true position in cutaneous nosology from the accidental appearances respective of degree of irritation that it may present, must not only fail, but lead to serious errors in diagnosis. I have seen

cases of scabies in which there were no vesicles and no pustules, but, nevertheless, the acarus revelled there in undisturbed enjoyment. Where would be the reputation of the medical practitioner who took no steps in such cases to protect the families in which they existed against the transmission of so repulsive a disease?

Another and a serious error has arisen out of the present position of scabies in the nosological scheme; I allude to the belief that I have heard expressed and seen recorded, that scabies may originate in a disordered state of the fluids of the system; that an *eruption* of scabies may be consequent upon constitutional causes, or be elicited by a particular mode of diet. As well might we conclude that constitutional disease was capable of engendering ether external parasites, and treat our patients with internal remedies while we neglect the external conditions on which their increase absolutely depends.

### SCABIES.

Syn. *Psora*. *Itch*. *Scabies papuliformis, lymphatica, purulenta, cachectica*. Willan.—*Gale*. Fran.—*Kraetze*, Germ.

419. Scabies\* is an affection of the skin, characterized by scaliness of the epidermis, by vesicles, and in severe cases by pustules; to which may be added accidental abrasions and scratches produced by the nails. It is accompanied by excessive itching, the itching being augmented by warmth and by the use of stimulating food and drinks.

The above appearances are due to the presence of a minute animalcule, the acarus scabiei, which burrows beneath the epidermis, and excites irritation in the papillary surface of the dermis. The burrowing of this little creature gives rise to the *scaliness* (scabrities) and undermined state of the epidermis. The vesicles, which are few and scattered, bearing no proportion to the number of the acari, and little relation to their seat, present some differences in form and character, respective of their position. Thus in the thin epidermis of the lateral surfaces of the fingers they are distinctly conical and acuminate; on the wrists and other parts of the body they are frequently more or less rounded, and resemble the vesicles of eczema; while in the latter situations they are also variable in size. The vesicles differ in reference to their contents; in those of a conical form, the contained fluid is transparent and viscous; in the rounded vesicle the fluid is also transparent, but in some it is more or less opaque and puriform. The pustules are present only in severe cases, or in persons with an extremely sensitive skin; they are generally psudracious, and vary in size, from the small pustule of impetigo to the larger pustule of ecthyma.

When one of the early vesicles of scabies is examined with attention, a minute spot or streak may be observed upon some one point of its surface. This is the aperture originally made by the insect on its first entrance beneath the epidermis, and from this spot or streak a whitish line

\* Quasi scabrities.

may be traced either in a straight or a curved direction, into the neighbouring epidermis. The whitish line is the *cuniculus*, or burrow of the acarus; it necessarily varies in length, being sometimes as much as five or six lines in extent, and at its termination, under a slight elevation of the epidermis, the little inhabitant lies concealed. The acarus may be easily distinguished by the experienced eye as a small dark point at the end of the cuniculus, and if a thin capsule of epidermis be raised in this situation with the point of a needle, the little creature is brought into view. It should be needless to remark, that eyes must be properly selected for the manipulation, and a bright light carefully chosen.

The spot or streak which is here described is not met with on all the vesicles, for the same animal may excite a series of these in its course; and a number may be developed in the vicinity of its habitation, while in the primitive vesicle alone—that formed by the entrance of the acarus—it is, that the trace of its entrance can be expected. The aperture, again, does not communicate with the interior of the vesicle; it is the too close neighbourhood of the little *grubber* that acts as the cause of formation of the vesicle; the vesicle is consequently a provision of nature to protect the dermis from the nearer approach of the *arator*, and the vesicle is formed with the judgment which usually marks nature's operations—namely, before a defensive provision would be too late. The acarus *scabiei*, therefore, is *never* situated within the vesicle or within the pustule, and there is no communication between the vesicle and the cuniculus.

The eruption of scabies usually makes its first appearance between the fingers; from these it extends more or less quickly to the wrists, flexures of the elbow, the axillæ, and the abdomen. In weakly constitutions it may be limited to the hands for a considerable period without extending farther, while in severe cases and sanguine constitutions it may speedily spread over the entire body, with the exception of the face, which is very rarely affected.\* The excessive itching causes persons suffering from this annoyance to scratch, with violence, the seat of the eruption; but the scratching serves only to extend the pruritus, and the skin is often severely torn and abraded. When the points of the vesicles are broken, they become covered with small, thin, yellowish scales, and when they are made to bleed, they are occasionally followed by little black scales, like those of prurigo. When, in consequence of superadded irritation from susceptibility of the skin, from scratching, from injudicious remedies, or from a plethoric state of the system, the vesicles take on the characters of pustules, the disease assumes the appearance which has been described by Willan under the designation of *pustular itch* (scabies purulenta.)

The seat of the eruption of scabies is occasionally found to be modified by circumstances. For instance, while, in the generality of cases, the disease is observed between the fingers and on the wrists, in those who from hard labour or the manipulation of hard substances have the epidermis of the hands and arms much thickened, it would be sought for in

\* The only case on record with which I am acquainted, of scabies affecting the face, is one mentioned by Alibert. The subject was an infant, and was supposed to have received the disease from the mammæ of its nurse.

vain on those parts. In tailors and needlewomen, the eruption is first developed on the hands; and in infants, Rayer remarks, that the vesicles are first perceived upon the breech.

The activity and extent of scabies are strikingly modified by the state of constitution of the patient, its energy maintaining an exact relation with the vigour of the system. When the person is of sanguine temperament and robust, the scabies spreads rapidly, and gives rise to insupportable pruritus: when, however, the subject is weakly and infirm, or reduced by the presence of other disease, its progress is slow, the eruption partial, and the pruritus moderate.

Although in cold and temperate climates scabies may be regarded as a mild and unimportant affection as respects the health, producing but little local disease, and no constitutional symptoms, yet in warmer climates, as has been well observed by Dr. Adams,\* in Madeira, it is for the most part accompanied by pyrexia, and the local effects are often very severe. The itch-animalcule is very common in the island of Madeira, where it is called *ouçou* or *ouçam*. The following case, illustrative of these remarks, I quote from Dr. Adams's account of these animalcules:†—

“A patient (a European) applied to me on account of a spreading inflammation, attended with large vesications, collections of serum, in some places of pus, with intolerable itching, sometimes intense pain and smart fever. All these symptoms were much exasperated at a certain period of the day. I treated it like any other inflammatory complaint, with evacuants, and poultices to the part. The latter afforded some relief, but my patient grew extremely impatient from the fever and frequent violent pains, which deprived him of sleep. This induced me to examine the part with more care, and to convince myself that, how great soever the pain might be, the mischief extended only immediately under the cuticle. In the mean time, the female servant, who assisted with the poultices, pronounced the disease *ouções*, and to convince him of the truth of her assertion, extracted two from the edges of the sore, which he saw crawling on his nail. This appearance of the disease, so entirely local, and the part affected with such violence, was so different from any thing I had met with before, that no evidence less than the above would have satisfied me. The pain indeed was less surprising, when we consider the disease was immediately on the *rete mucosum*. Subsequent experience taught me that these symptoms are by no means uncommon. The disease yielded instantly to the usual topical remedy.”

420. *Diagnosis*.—One of the most important features in the history of scabies is the distinction of the disease from other cutaneous affections; and this not only with reference to the mind of the patient, but also with regard to the management to be adopted. The treatment which is applicable to scabies would be highly mischievous in other diseases with which it might be confounded; while, on the other hand, the means appropriate for the cure of other diseases would leave the itch in full possession of its mischievous activity. The chief diagnostic features of scabies are—*firstly*, a peculiar scaliness and undermined state of the epidermis, which are not met with in other cutaneous affections; *secondly*, its conical vesicles, with acuminate and transparent points; and *thirdly*, and principally, the presence of the *acarus*, which may be extracted from its retreat beneath

\* On Morbid Poisons.

† Page 298.

the loosened epidermis, with the point of any sharp instrument. The diseases with which this disease may be confounded are, eczema, prurigo, lichen, impetigo, and ecthyma.

Eczema is a vesicular disease, and therefore bears some resemblance to one of the characters of scabies, but the vesicles are globular, and scarcely raised above the surface; they are always collected in clusters, and give rise to a sensation of pricking, rather than of itching; moreover, eczema is not communicable by contact.

Prurigo is a papular disease, and unaccompanied by vesicles; it occurs on the back and shoulders, and the outer sides of the limbs, where the skin is thickest. Many of the pimples are torn by the nails, and surmounted by little black scabs, which are characteristic of prurigo; whereas the scabs which form on the ruptured vesicles of scabies are mere scales, and yellowish in colour, a few only being black, when the scratching is carried to the extent of making the vesicles bleed. The pruritus of the two diseases, again, is different; in prurigo, it is burning and painful, which is not the case in scabies, and moreover, the disease is not communicable. Prurigo is occasionally met with as a complication of scabies, and in this case the diagnosis requires a nice discrimination.

Lichen simplex, again, is a papular disease without vesicles, the pimples being assembled close together. When lichen occurs on the hands, it affects the dorsal surface, and not the interspaces of the fingers; the pruritus accompanying lichen is trifling when compared with that of scabies, and the disease is not contagious. Lichen sometimes complicates the eruption of scabies.

Scabies can only be mistaken for impetigo and ecthyma, when complicated with pustules; however, the limitation of the pustules to the hands or flexures of the joints, and the presence of the scaly epidermis and conical vesicles of itch, will be sufficient to determine the diagnosis.

Another complication of scabies frequently results from the irritation of substances employed in the treatment of the disease; it is, an eruption of eczema simplex. I have seen cases wherein the treatment of scabies has been continued for upwards of six months, and the disease to all appearance, has resisted the remedies employed for its cure. But in these cases, the scabies was long since eradicated, and the obstinate eruption which continued was an eczema simplex, induced and perpetuated by the irritating applications used for the cure of the supposed itch. These cases immediately recovered when treatment was laid aside.

421. *Causes.*—Scabies affects all ages, both sexes, and all ranks of society, but is most frequently seen among the lower classes, in whom personal cleanliness is neglected, and the opportunity of communication consequently greater. When the disease makes its invasion in respectable families, its source may generally be traced to the servants and their connexions.

The disease is always communicated by contact, either immediately, or through the medium of articles of clothing which have been in the possession of the infected individual. But there are many circumstances predisposing to its influence, such as luxuriant health and vigour, sanguine or lymphatic temperament, the spring or summer season of the year, warm climate, youth, confined atmosphere, want of cleanliness, &c. The period at which the vesicles make their appearance after the invasion of the acarus, presents several important and remarkable modifications, having re-



lation to the state of health and age of the subject, and the season of the year. Thus, in strong and healthy children, the vesicles have been observed at the end of two days after contact, the ordinary period for children being four or five days, while in those that are weakly, the period of eruption may be still farther postponed. In adults the ordinary period of incubation is a week or ten days, but in the winter, the eruption may not appear for a fortnight or three weeks. Old persons, again, require a still longer time for the development of the vesicles, particularly in the winter season.

The proximate cause of scabies is the *acarus scabiei*,\* which is transferred by the infected to those who are sound by actual contact. In some instances it may be conveyed to the sound person in the adult state; while in others, ova, or embryos suspended in the fluid of the vesicles, may be the mode of transmission. Certain it is, that the application of one of these animalcules to the skin of a sound person will give rise to the disease.

Some highly interesting and conclusive experiments on the habits of our animalcule were made, on the revival of the *acarus scabiei* in France, by M. Albin Gras, a pupil at Saint Louis, and published by that gentleman in the year 1834.

EXP. 1.—“On the twenty-eighth of August,” writes M. Gras, “in the presence of several physicians and students, I placed two living acari on the middle and anterior part of my fore-arm, and covered them with a watch-glass kept in its place by a bandage. On removing the apparatus on the thirtieth, we found two superficial cuniculi (sillons) half a line in length, and at their extremity two little white points, indicating the presence of the acari. Substituting a fold of linen, retained in its place by a piece of adhesive plaster, for the watch-glass, the acari were left undisturbed for six days longer. At the end of this time the white points were no longer perceptible, and the cuniculi having become obliterated, had disappeared.”

EXP. 2.—“On the first of September, I placed seven living acari on my fore-arm, and covered them with a fold of linen, and piece of diachylon plaster. Four days after, we found four or five well-marked cuniculi. On the sixth of September, two of the acari being extracted from their cuniculi, were found active, they were then replaced. On the twelfth, another animalcule was removed and examined; it was quite lively. On the fourteenth, there was considerable itching, with the development of a vesicle; the cuniculi were two lines long. On the sixteenth, there were *several new vesicles near to the cuniculi, but not on their line*. On the seventeenth, the vesicles of the previous day had been rubbed off by the linen, but two or three new ones were visible. On the following day I put an end to the experiment, by rubbing some sulphuro-alkaline ointment into the part. During the course of the experiment, I suffered pruritus from time to time.”

EXP. 3.—“On the ninth of the month, I imprisoned six acari on my ring finger, by means of the finger of a glove. Next day there were two cuniculi half a line long. The *acarus* of one of these burrows was apparent for ten days, the other for three weeks, but after this period they both disappeared. During this interval, I cauterized several suspicious vesicles

\* The history of this animalcule will be found recorded in Chapter XVII., at the conclusion of the volume.

developed on the same finger, and discovered two new cuniculi originating in acari that had fixed themselves without having been observed. None of the vesicles showed themselves on the line of the cuniculi."

EXP. 4.—"I lately placed nine acari in the bend of my left arm, and retained them there by a compress and bandage. Four hours after, I felt considerable pruritus, and next day perceived four cuniculi. Several days after, some vesicles showed themselves on my fore-arm."

EXP. 5.—"Having placed two acari in the flexure of the elbow of two persons, who expressed their willingness to submit to my experiments, on one, three or four vesicles were apparent on the fifth day, and were accompanied by severe itching. On the other there are two cuniculi, with pruritus, but no vesicles."

Scabies is not limited to man; it is not unfrequently seen in animals, and by them may sometimes be communicated to man. During the spring of 1840, I had the opportunity of seeing and treating a case so communicated in the person of a veterinary surgeon, who had received the contagion from an ass upon which he was performing a physiological experiment.

422. *Prognosis.*—Scabies is a mild disease, and little affective of the strength of the system. Some few cases have been recorded, in which the eruption has subsided during an acute disease, to reappear as soon as that disease had become somewhat mitigated. Instances have also been advanced, with a view to prove that certain serious visceral diseases have occasionally been developed upon the sudden retrocession of scabies. These statements, however, are not borne out by observation, but there is good reason for the belief that a brisk attack of itch would rather be useful than otherwise, as an effective counter irritant.

423. *Treatment.*—The treatment of scabies is purely local; in some instances, it is true, where the subjects are strong and plethoric, benefit may be obtained by the exhibition of aperients, or by the abstraction of blood. But in the majority of cases, no constitutional means are required.

Numerous therapeutic remedies have been employed from time to time for the cure of this disease, and as the main object to be attained is the extermination of the acarus, many have been successful. Several of these medicines act by means of their stimulating powers, and at the same time that they destroy the parasite, excite considerable irritation in the skin. Others, again, effect this object without causing irritation, or they give rise to much less inconvenience. In selecting our measures of treatment, therefore, our attention should be directed to the employment of remedies which will act with certainty, and will produce the least possible degree of excitement in the cutaneous surface. Such a remedy is presented to us in sulphur, which may indeed be regarded as a specific in the treatment of scabies. To effect the cure, the sulphur is well rubbed into the skin, and is conveyed by imbibition into the texture of the epidermis. Here it probably combines with hydrogen, and sulphuretted hydrogen gas is evolved, which acts as a deadly poison to the acarus, and destroys its ova. In some instances the sulphuretted hydrogen gas in solution is employed as a wash or bath, and answers the purpose perfectly, but is longer in effecting a cure than the sulphur, probably on account of the gradual and constant generation of the gas in the tissue of the epidermis in the latter case. The sulphuretted hydrogen lotion gives rise to less irritation than the sulphur ointment, and is therefore a preferable mode of treatment in children, and persons with a delicate skin. Before either of these or any other remedies

are employed, however, it is desirable to prepare the skin for their reception by a thorough ablution, with a warm solution of subcarbonate of potash, containing about half a pound of alkaline salt to a gallon of water.

To effect the cure of scabies in the shortest possible time, the best preparation of sulphur is the compound sulphur ointment, of which, in the adult, four ounces should be well rubbed into the skin before the fire, and particularly into the affected portions, morning and evening, for two days. On the morning of the third day, the patient should take a warm bath, and wash the skin thoroughly with plenty of soap, when the cure will, generally, be found to be effected. Much, however, depends upon the manner in which the alkaline ablution, and the friction of the affected parts, shall have been performed. In some cases, it may be desirable, as a matter of precaution, to continue the inunction for a third day, or to use the white precipitate ointment\* to the affected parts for a week or ten days, in case any ova may have escaped the influence of the sulphur treatment. In children, one half of the above quantity of ointment will be found sufficient. This method, while it offers the advantage of a rapid cure, is liable to the inconvenience of producing accidental eruptions.

When time is not a main object in the cure of the disease, recovery may be effected in the course of a week, with less risk of exciting unpleasant irritation, by means of the simple sulphur ointment combined with subcarbonate of potash, in the proportion of an ounce of the alkali to a pound of the ointment; of this, two or three ounces may be rubbed into the affected parts three times in the course of the day. Or again, by the compound sulphur ointment, used in the same quantity, and at the same intervals.

The sulphuretted hydrogen treatment consists in bathing the surface of the body in a solution or bath of sulphuret of potash, containing one or two ounces of the salt to a pint of tepid water; or in sponging the skin with a mixture of two ounces of each of the following solutions in half a pint of tepid water, many times in the course of the day:—

℞  
Sulphureti potassæ, ℥ij.  
Aquæ, Oj.  
M. ft. solutio.

℞  
Acidi muriatici, ℥j.  
Aquæ, Oj.  
M. ft. solutio.

The former of these methods is well adapted for young children, but the latter frequently creates considerable irritation, and produces accidental eruptions. The duration of treatment is a week or ten days.

Numerous other preparations, sulphureous and not sulphureous, and each possessing, according to their advocates, peculiar advantages, have

\* ℞  
Ung. hydrarg. ammonio-chloridi, ℥j.  
Moschi, gr. ij.  
Olei lavandulæ, ℥ij.  
Olei amygdalarum, ℥j.  
M.

been recommended by different authors. Among the more deserving of mention of these remedies, are the following:—

*Saponaceous compounds.*

℞  
Potassæ subcarbonatis, ℥ij.  
Aquæ, ℥j.  
Olei olivarum, ℥ss.  
Camphoræ gummi, ℥ij.  
Sulphuris sublimati, ℥v.  
M.

Sulphuris sublimati  
Saponis albi, āā. lb. ss.  
M.

The saponaceous compounds possess the advantage of not soiling the habiliments of the patient.

Pyhorel recommends the friction of half a drachm of sulphuret of lime with sweet oil into the palms of the hands, without any application to the surface of the body, the treatment being continued for fifteen or twenty days. Fantonetti advocated the use of chloride of lime; and Delpech, the employment of frictions of sweet oil alone. This last remedy would, doubtless, act most destructively upon the acarus, should the oil reach the animalcule. Sulphureous fumigations are altogether useless, and acid lotions of little benefit, and liable to be attended with much inconvenience. Tar ointments, mercurial ointments, and ointments of ioduret of sulphur, have also been employed against this disease.

In young children, and in families, when the odour of sulphur is made a point of serious objection, I have found camphor dissolved in oil, in the proportion of one drachm to the ounce, answer every purpose of eradicating the disease.

Among the simples recommended from time to time by different physicians, or employed popularly, are, solution of tobacco, used by Boerhaave, but liable to many objections, stavesacre; hellebore; scabious; sweet-scented rush; elicampane; and onions.

Especial care should be taken that the whole of the garments worn by the patient, and the bed-clothes in which he has lain, should be disinfected by exposure to sulphureous acid gas. This is a measure of great importance in its observance, since the acari and their ova remain attached to all articles of apparel, and are easily communicated by them. Indeed, whenever practicable, it would be desirable that the infected clothing should be destroyed. To complete the eradication of the animalcules, perfumes should be worn in the dress for several weeks.

The treatment of scabies has been greatly enriched by the observations of M. Albin Gras, in the work before alluded to. He observes:—

“I was enabled to obtain living acari from a patient who had taken two or three sulphur baths, containing four ounces of sulphuret of potass to the bath. On the contrary, I have frequently found them all dead after a single friction with the sulphuro-alkaline ointment.” “But although the insects are dead, vesicles still continue to appear for several days.”

“Immersed in pure water; the acarus was yet alive after three hours; in saline water it moved feebly at the end of three hours; in Goulard solution it lived after an hour; in olive oil, almond oil, and castor oil, it survived more than two hours. In croton oil it was living after the lapse of an hour, but dead at the end of four; in lime water it was dead in three quarters of an hour; in vinegar, in twenty minutes; in alcohol, also in twenty minutes; but in naphthaline still more quickly; in a solution of sulphuret of potass, it was dead in twelve minutes; in spirit of turpentine in nine minutes; in a concentrated solution of hydriodate of potass, the acarus ceased to exist in from four to six minutes; in a solution of arsenious acid it was dead in four minutes; in sulphuric acid, diluted with three parts of water, it died in three minutes; in pure creosote, and in concentrated acids and alkalies, its death was immediate. Placed overnight on powdered sulphur, the animalcule was found dead the next day; and it required to be exposed to the vapour of burning sulphur for sixteen minutes before it died.”

## CHAPTER IX.

## HYPERTROPHY OF THE PAPILLÆ OF THE DERMIS.

424. THE diseases included under this head are four in number—viz.,

Ichthyosis.  
Tylosis et Clavus.  
Verrucæ.  
Cornua.

425. Hypertrophy of the papillæ of the dermis may exist as the consequence of congenital formation, or it may be the result of increased nutrition from excited action of the nerves and vessels of the skin. Of the former kind are those remarkable instances of congenital ichthyosis that we sometimes meet with or find recorded by various authors, and of the latter, the more common cases of corns, warts, and horns, although it must be admitted that the latter diseases are sometimes of congenital origin. Conjointly with increase of size of the papillæ, there is increase of function, and the epidermis is produced in abnormal quantity. The epidermis, however, in the present group of diseases, is perfectly normal in structure and chemical composition, and in this respect differs essentially from the thickened scales of abnormal epidermis which are characteristic of the squamous diseases.

## ICHTHYOSIS.

Syn. *Fish-skin disease. Porcupine disease.*

426. Ichthyosis, the fish-skin disease, is an inordinate production of epidermis, which, by splitting in the direction of the natural furrows of the skin, assumes the form of irregular scales, and sometimes of spines of considerable length. The disease is general in its distribution, occupying a surface of considerable extent, and occasionally the entire body, with the exception of the palms of the hands, the soles of the feet, the face, and the flexures of joints. The most frequent seat of the affection, when less widely diffused, is the thick skin of the outer sides of the limbs, the convexities of the joints, more particularly on the elbows, the wrists, and the knees, and the dorsal surface of the trunk.

Ichthyosis is for the most part congenital; it is associated with a dry skin, in which the perspiratory function is deficient; it is unaccompanied

by redness, heat, or local uneasiness, and it endures for a lengthened period, often for the lifetime of the patient. In the earlier periods of the disease the integument is unaffected, retaining its natural softness and pliability; at a later period, however, it becomes thickened and hard from infiltration and deposition in its tissue, and the morbid action appears to extend deeply into the subjacent tissues.

427. The varieties of ichthyosis admitted by Willan are two in number, ichthyosis simplex, and ichthyosis cornea, to which I think may, with great propriety, be added a third, which shall comprehend some irregular forms of epidermic production—ichthyosis spuria.

The terms used by Alibert to represent varieties of ichthyosis—viz., ichthyose nacrée serpentine, and ichthyose nacrée cyprine, refer merely to stages of growth of ichthyosis simplex, the former being an early stage, in which the scales are not raised above the surface, and the latter a more advanced stage, in which the scales have attained a certain degree of roughness, and in this respect may be compared to the scales of a fish. The varieties under which I shall proceed to describe this disease are,

Ichthyosis simplex.  
 „ cornea.  
 „ spuria.

ICHTHYOSIS SIMPLEX.

428. The simple variety of ichthyosis is characterized by the development of spines of various form, thickness, and length, on any part, or upon the whole surface, of the skin, with the exception of the face, the palms of the hands, soles of the feet, and the flexures of the joints. The disease is unattended with pain, inconvenience, or redness of the skin, and is rarely accompanied by internal disorder. The spines consist of hardened epidermis, and are of a dirty-brown or greenish-brown colour.

The form and length of the epidermic spines in this disease are determined by certain laws, the former depending upon the shape of the small areas of the epidermis marked out by the furrows of the skin, and the latter upon the powers of the system, which seem to fail, after a certain period, to continue the process of formation. In illustration of this view of the subject, it will be remarked that in the spines produced upon the convexities of the elbows and knees, where the dermic areas are large and somewhat quadrilateral, the section of the spines has a similar form, while on the anterior aspect of the fore-arms, particularly near to the joints, where the areas are narrow and elliptical, the spines are transversely flattened and slender. With regard to length, I have never seen any of the spines longer than a quarter of an inch; but Willan records instances in which they attained a full inch in some places. The spines stand out perpendicularly from the surface of the skin, their sides are polygonal, and when the limb is in its natural position, they fit closely side by side so as to present by their free extremities an even and continuous surface. The free ends of the spines are more or less rounded and polished by attrition with the dress of the patient, and the sharp angles of their shafts are rounded off by friction against adjoining spines caused by the movements of the limbs. The most remarkable character, however, is presented by the attached extremity of the spines, which,

when their growth is completed, is narrow and pedunculated, and in a state to be easily broken if pressed with a moderate degree of force. This, indeed, is the natural course of the spines; as soon as they have completed a certain length, the formative process is less active, a pedicle is formed which becomes more and more narrowed in its diameter, and the spine is thrown off to give place to a fresh formation.

429. The production of the epidermis spines of ichthyosis may, possibly, be more easily explained by referring to the mode of development of the disease. The first indication of any abnormal disposition evinced by the skin is the appearance of a duskiness of some part of the integument; upon this part the epidermis is thicker than upon surrounding regions; it is dry and fragile, and speedily breaks in the direction of the natural furrows of the dermis. At this period the epidermic production consists of angular scales of various size, but exactly conformable in shape and extent to the form of the *areæ* included by the dermic furrows. The scales thus formed and limited by the ruptured borders of the epidermis constitute the first produced portion of the future spines. This portion is gradually removed farther and farther from the surface by the formation and addition of successive laminæ to the adherent extremity of the spine; in this manner, by repeated additions, the spines attain a certain length, and the tendency to formation begins to diminish; the next deposited layers, instead of being produced by the entire surface of the area, occupy only a part of its extent, and at each following addition the formative surface is more and more contracted, until the spine is connected with the dermis by a mere pedicle. It is, moreover, evident that a continuance of the same process would eventually separate the spine altogether from the surface, and its fall would be succeeded by a renewal of the producing process.

When the rupture of the epidermis in the first instance occurs, the superficial layers are alone broken, while the thin layer in immediate contact with the dermis retains its integrity, subsequently the movements of the skin and of the scales interfere with the epidermic formation in the furrows, and in this situation a powdery desquamation continues to be formed and thrown off.

430. This disease is not usually accompanied with constitutional symptoms; the persons affected appear to enjoy undisturbed health. Sometimes, however, irritation of the mucous membranes is coincident with the cutaneous affection. Willan has observed, that inflammatory pustules or boils occasionally appear on some part of the skin. The epidermis of the palms of the hands and soles of the feet is dry and harsh, and there is frequent scaliness of the face.

#### ICHTHYOSIS CORNEA.

431. Ichthyosis cornea is a local form of this disease, in which the spines are of greater length than those of ichthyosis simplex, and are often curved and twisted in their form.

It frequently happens that this variety is nothing more than a modification of the preceding, altered in its characters by the small extent of surface it may chance to occupy. In this case, the morbid activity is more vigorous than in ichthyosis simplex, the spines have no tendency



to become pedunculated, but continue to retain their broad connexion with the dermis, and consequently increase in length to an indefinite extent. The more frequent seat of this variety is the convexities of the elbows and knees.

432. Another variety of ichthyosis cornea is that in which the epidermic formation has no tendency to split into areolated spines, but preserves its integrity, and constitutes a horn of considerable thickness, and variable length.

#### ICHTHYOSIS SPURIA.

433. After certain chronic affections, in which the skin is secondarily involved, particularly that of the lower extremities, the epidermis is produced in abnormal quantity, it becomes thick, dry, and harsh, and cracks into scales of irregular form and size. This appearance of the skin has been admitted by Willan into his description of ichthyosis, and referred to by other writers under the title of accidental ichthyosis. As an inordinate production of epidermis, the affection more properly belongs to this order than to any other; but at the same time it is so different in many of its characters, and in its amenability to treatment, that I have thought it advisable to consider it apart as a variety of ichthyosis.

Spurious ichthyosis occurs for the most part in old persons and in those of weakly constitution, in whom the natural functions of the skin are inactive. It is sometimes the consequence of anasarca. When it lasts for some time, the integument becomes thickened and infiltrated, and eventually disorganized.

434. *Diagnosis.*—The grand diagnostic character of ichthyosis is the identity of composition of the scales or spines with epidermis. The spines retain all the pliancy and toughness of normal epidermis, and differ from it only in its combination with a larger proportion of colouring matter. This character sufficiently distinguishes ichthyosis from the squamous diseases, in which the scales are not only thin, but composed of abnormal and friable epidermis, and especially from the numerous forms of albuminous crusts, which are produced upon the surface by the desiccation of a morbid secretion.

The only disease which at all approaches in similitude to ichthyosis, is the concretion of a morbid sebaceous substance on the surface of the skin. This, however, may be distinguished from true ichthyosis by the ease with which it can be separated from the epidermis, and the evidently sound state of that membrane beneath.

435. *Causes.*—The causes of ichthyosis are wholly unknown, the disease evidently depends on augmentation of a natural function, the formation of epidermis; with an increased development of the secreting organ, the papillæ of the dermis. Ichthyosis is for the most part hereditary, appearing in the male branches of a family only, as in the instance of the Lamberts, but often originating without any similar disease having been known to exist in the family of the diseased person. In rare instances, it appears a few days after birth, but more frequently shows itself for the first time at the end of two or three months. Rayer alludes to a fœtal monster preserved in the anatomical museum of Berlin, the whole surface of whose body is covered by a thick layer of epidermis. The skin is several lines in thickness, and the epidermis presents numerous fissures,

forming a covering like a coat of mail to the body. When the disease occurs after puberty, or in the adult, it would appear to be dependent on local and endemic causes. Among these have been enumerated, the ingestion of bad fish, bad water, humidity of atmosphere, &c. Buffon states the disease to be endemic in Paraguay, and several places on the sea coast have, equally incorrectly, obtained a similar reputation.

436. *Prognosis*.—The chances of cure of the hereditary and general form of ichthyosis are very uncertain; the local forms, however, are more tractable.

437. *Treatment*.—The indications to be fulfilled in the treatment of ichthyosis are two-fold; firstly, the removal of the abnormal production; and secondly, the prevention of its reproduction. The first of these indications may be effected, without much difficulty, by employing the well-known powers of soda in the dissolution of albumen. Warm baths containing the sub-carbonate of soda will speedily soften and then dissolve the hardened epidermis. The second indication calls for the use of measures which are calculated to modify the state of the system. For this purpose, alteratives should be used, both externally and internally, with the intention of exciting a different action in the cutaneous textures. Some stimulating application, such as a liniment, or ointment of croton oil, in the proportion of a drachm to the ounce, should be rubbed into the skin, with a view to excite and keep up the capillary activity; while the liquor potassæ, the hydriodate of potash, or, as a last resource, the liquor arsenicalis, should be administered internally. Willan, Bateman, and Elliotson, have recommended the use of pitch, taken internally, in doses of an ounce, daily; creosote is an elegant substitute for this remedy. Ichthyosis cornea may be treated with local stimulants, in addition to the constitutional management. The nitrate of silver, in solution, may be used beneficially in this form. The spurious form of the disease, particularly when it affects the lower extremities, requires the use of well-adjusted bandages. These, with some slight stimulant, will frequently remove the disposition to recurrence of the epidermic formation.

## TYLOSIS ET CLAVUS.

Syn. *Callosities*. *Corns*.

438. A corn is an increased thickness of the epidermis, resulting from hypertrophy of the papillæ of the dermis, this hypertrophy being determined and kept up by the irritation caused by undue pressure and friction on the part affected. So long as the causes which first gave existence to the corn continue, the epidermis accumulates, and by its pressure on the vascular dermis may give rise to ulterior and serious consequences. But as soon as the pressure and friction are removed, the dermis regains its natural state, and the epidermis ceases to be produced in abnormal quantity. The ordinary seat of corns is the feet; they may, however, be developed on every part of the body.

439. Corns present us with three modifications in relation to structure and degree, which I shall consider as varieties; these are,

Laminated corns,  
Fibrous corns,  
Soft corns.

## LAMINATED CORNS.

Syn. *Tylosis. Callosity.*

440. Investigating the manner of development and growth of a corn, we find that wherever a portion of skin is pressed and rubbed by a hard and irritating substance, as in the case of the integument of the foot by the shoe, and particularly when the part itself is unable to yield sufficiently, in consequence of its seat over a bone, to escape the pressure or friction, the vascular rete of the dermis becomes congested. If the process were now to cease, the congestion of the dermis would diminish, and the skin gradually return to its natural state. But instead of ceasing, the pressure and friction are continued from time to time, and for some hours together, for months, and even years; the dermis becomes more and more and habitually congested, and the papillæ are at first temporarily and afterwards permanently enlarged, the lengthening of the papillæ being most considerable in the centre, where the greatest pressure exists.

The enlargement or hypertrophy of the papillæ of the dermis is a perfectly natural process, and the mere result of excitation of the cutaneous nerves in the first instance, seconded by vascular determination to the part, and subsequently increased vascularity with the associated consequence, augmented nutrition. With the hypertrophy of the papillæ, the function of these organs is likewise increased, and a proportion of epidermis, corresponding with the enlarged papillæ, is produced. The formation of this epidermis over the hypertrophied papillæ constitutes a callosity, or corn, and the thickness of the corn bears an exact proportion to the thickness of the epidermis of the surrounding skin, *plus* the increased dimensions and vascularity of the formative papillæ.

This is the mode of formation of every corn, and this the structure which all newly-formed and moderately-sized corns present. It follows, from this description, that if we make a vertical section of such a corn, and examine the cut surface with a lens, we shall find the epidermic thickening perfectly homogeneous, and this is the general fact. Sometimes, however, it happens that the section of the corn presents a distinctly stratified texture, and the successive laminæ differ from each other in colour. I have seen the laminæ presenting the various tints of light brown, dark brown, and even black. This peculiarity of structure is very easily explained. A more violent pressure than usual, such as that produced by a new boot, or an unusually long walk, upon the enlarged papillæ, has caused an effusion of blood beneath the epidermis, or among the epidermic cells. A new formation of epidermis carries this ecchymosed part towards the surface, and it is seen on the face of a section as a dark lamina. Minor degrees of pressure will give rise to smaller sanguineous effusions, and consequently to lighter coloured or thinner laminæ; and, moreover, the effused and desiccated blood will lose a considerable proportion of its colour as it approaches the surface.

## FIBROUS CORNS.

Syn. *Clavus.*

441. The preceding is a sketch of the history of the common laminated corn, or callosity, but those who have paid attention to the subject will

have observed in certain corns of ancient date something more than this. On the summit of the corn they will have remarked an appearance resembling the ends of fibres; in cutting the summit horizontally, there is an appearance as though these vertical fibres were cut across, and they may possibly associate with this appearance the popular belief in the existence of a core and root to the corn. If a vertical and central section be made of a corn of this kind, the existence of vertical fibres, generally slightly different in tint of colour from the homogeneous epidermis, and frequently intermingled with traces of opaque white, is distinctly demonstrated. To explain the nature of this appearance, I must take up the detail of the mode of growth of a corn from the point where my description last ended.

In examining the structure of the skin microscopically, six years since, with my much esteemed friend, Dr. Jones Quain, I discovered that the papillæ of the dermis were not uniformly of the same length, but that every here and there a single isolated papilla might be seen, longer by one half than the neighbouring papillæ. In directing my researches to corns, I found that the dermis of corns of old standing, and such as presented the fibrous central appearance to which I have alluded above, was remarkable for a tuft of these long papillæ in the centre of the hypertrophied patch, and that these elongated papillæ corresponded uniformly with the fibrous structure of the corn. Continuing my investigations, I perceived that in the laminated corn, the papillæ, though hypertrophied, were pretty uniformly of the same length, and not so long as to interfere with the ordinary laminated mode of formation of the epidermis; that by degrees, however, the papillæ of the centre of the congested patch of dermis became more and more elongated; at first this elongation was confined to three or four papillæ, but subsequently the change extended to a tuft of greater or smaller size. It is clear that this elongation of the central papillæ is dependent on the greater degree of pressure effected on the central point of the corn, and on the continuance of the pressure in that situation, even when the rest of the surface is protected. Indeed, the larger growth of the central papillæ, with the consequent larger formation of epidermis, serves for a time as a means of protection to the circumjacent papillæ.

Whenever hypertrophied and isolated papillæ of the dermis reach a certain length, they act as independent organs, and instead of combining with the shorter papillæ in producing a laminated epidermis, they form each for itself a distinct sheath, which becomes elongated by a continuance of growth to an indefinite length. On the tongue, where the papillæ are widely separated from each other as compared with the dermis, I have collected specimens of elongated epithelial sheaths, fully half an inch in length, and in this situation, in consequence of the wide separation of the papillæ, the sheaths are perfectly distinct; but in the dermis, the lengthened papillæ, though isolated, are surrounded by multitudes of shorter papillæ, which form a consolidating epidermic mesh around the papillary sheaths, and retain them in close connexion with the laminated epidermis. It is the existence of these papillary sheaths in the centre of corns of ancient date, that gives rise to the fibrous structure apparent on the surface of a vertical section. These sheaths are sometimes of an opaque, white colour, and differently tinted from the rest of the epidermis, from some trifling disturbance in the formative process, such as that which gives rise to the opaque white spots on the finger nails.

The following experiment, which I have repeatedly made, will prove

the accuracy of these views:—If you pare an old corn slice after slice with a sharp knife, and observe the face of each section, you will come to a semi-transparent surface, immediately beneath which, in two or three spots, you will perceive a red-coloured point. This point is the extremity of an hypertrophied papilla, much longer than the rest. The next section will cut off the point of this papillæ, and there will be a slight oozing of blood. Another section will cut off the heads of several, and another again of still more.

Corns sometimes give rise to serious consequences; by pressure on bursæ they produce bunions; when seated on joints, they often excite inflammation of the structures, entering into the formation of the articulation, exostosis of bones, &c. I once dissected a corn situated on the metacarpo-phalangeal articulation of the little toe, which had made its way into the joint, and had produced absorption of the articulating ends of both bones.

#### SOFT CORNS.

442. These productions are exceedingly painful and annoying, and more troublesome than the two preceding varieties. They occur between the toes, are always of small size, present no convexity on the surface, and from being constantly immersed in the perspiratory secretion which collects in the situation of their growth they are soft to the impression of the knife.

The mode of formation and growth of soft corns is very different from that of the preceding. From the pressure of the toes one against another, some point of the skin, either corresponding with or on the soft parts immediately opposite the prominent head of a phalangeal bone, becomes slightly inflamed, and a greater thickness of epidermis than usual is formed. At this stage of growth of the corn, it frequently happens that an increase of irritation gives rise to effusion of a serous fluid beneath the white and thickened epidermis. The epidermis is rendered soft by impregnation with the serous fluid, and a small aperture is formed in the centre of the disk, through which the serum escapes. In this state I have seen a soft corn remain for several months during the summer season, the surface of the dermis continuing to secrete serum, and the serum being retained or escaping through the small central aperture. At other times, and when the irritation is less severe, the epidermis is thickened by the addition of fresh epidermic formations to its under surface, until a convex mass is formed, which, by pressure upon the papillæ of the dermis, effects their absorption, and puts a stop to the continuance of the formative process. If a soft corn be extracted at this period, it will be found to be plano-convex in its form, the plane surface corresponding with the level of the adjacent epidermis of the toe, and the convex surface projecting more or less deeply into the dermis.

The soft corn sometimes gives rise to the formation of an ulcer, and being separated from the adjacent tissues by suppuration, is thrown off. In one case I saw a sinuous ulcer excited by a soft corn, the ulcer extended to the phalanx; it was followed by exfoliation of the surface of the bone, and a permanent stiffness of the joint.

443. *Causes.*—The causes of corns are pressure and friction. They occur at all periods of life, and under various circumstances. On the

feet they are usually produced by the friction and pressure of shoes or boots, which are either too tight or too loose. Between the toes they result from the pressure of the toes against each other. They may also be the consequence of club-foot, where parts of the skin unused to pressure are made to support the weight of the body. On the hands, corns are met with as a consequence of the pressure or friction of tools in certain trades. On the knees they result from much kneeling, and are also found in various other parts of the body.

444. *Treatment*.—The treatment of corns offers two indications, one curative, the other palliative. The first consists in the removal of the cause—pressure and friction; and the latter, in the removal from time to time of portions of thickened epidermis. The first indication may be fulfilled, where practicable, by rest, and disuse of the article of dress that may be the cause of the affection; or by means of plasters spread on thick leather and pierced in the centre so as to remove the pressure from the summit of the corn. The plasters spread upon Amadou, as recommended by Mr. J. Wetherfield, are well adapted for this purpose.\* The palliative treatment consists in the removal of the thickened epidermis, either by scraping or filing after the corns have been well soaked and softened in an alkaline solution, or by cutting, either in the soft or hard state. In cutting a corn, the summit only should be removed, and this should be done in such a manner as to render the surface concave. The chiropodists contrive to grub out the central part of the corn, the root as they call it, by a patient process of cutting and tearing, leaving the circumference to serve as a circular cushion of protection to the more tender central part.

Other modes of removing the epidermis are by means of the nitrate of silver, by plasters containing the solvents of albumen, soda, and potass, &c. It should, however, be recollected, that the formation of a corn is not a morbid process, but simply an augmentation of a natural function, kept up by irritation.

The only cure for the soft corn is its entire removal: this may be most easily effected with a pair of scissors, all the thickened epidermis being taken away at the same time. The formation of soft corns may be prevented, and when present they may be rendered bearable, by daily ablution with soap, and by placing a piece of cotton wool between the toes after each ablution.

## VERRUCÆ.

Syn. *Warts*. *Sessile warts*.†

445. A wart is a state of hypertrophy of the papillæ of the dermis,† attended with an increased production of epidermis. Warts are usually of

\* Lancet, vol. I. 1841–2, p. 189.

† Under the name of *Verruca achrochordon*, a pedunculated wart is described by some authors. This is an error; warts according to the above definition are hyperformations of epidermis, but the pedunculated warts are invariably productions of the dermis, and in many instances, as I have ascertained, the emptied tegumentary sacs of small sebaceous tumours. (*Molluscum Contagiosum*, § 517.)

‡ My researches upon the structure of warts date as far back as 1830, when my attention was directed to their nature by a remarkable bleeding wart, which I had

small size, and of a rounded figure; sometimes, however, they appear in the form of bands several lines in breadth, and of variable length. They are generally insensible, rough to the touch, and their medium projection from the surface is about a line. They may be developed at any period of life, but are most frequent in children, and arise without any apparent cause, to continue for the rest of life, or disappear unexpectedly. Their usual seat is the hands, less commonly they are seen upon the trunk of the body, or the face.

Hypertrophy of the papillæ of the dermis in the production of warts takes place without apparent cause, and without premonition. The papillæ, for the extent of a line, more or less, gradually increase in length, and constitute a small tuft. Each of these papillæ forms around itself an epidermic sheath, and these epidermic sheaths are held together in the form of a bundle by the epidermic mesh formed between and around them by the bases of the hypertrophied and the surrounding normal papillæ. It very rarely happens that the whole of the papillæ included by the area of the wart are elongated; several of them retain their natural size, and these contribute to the production of the interfibrous epidermic mesh.\* When warts have grown to some length, their extremity becomes rough, and the fibrous structure of the wart is distinctly apparent; it not unfrequently happens that warts of long standing split and break up in the direction of these vertical fibres.

The structure of a wart is also shown by the experiment I have recommended for the same purpose in fibrous corns. If a succession of horizontal sections of the wart be made, the longest papilla will be cut across, and a slight oozing of blood will take place; and if the sections be continued, more and more of the apices of the papillæ will be divided. The structure of a wart is also well exhibited by thin sections cut horizontally and vertically, and examined under the microscope with a lens of low power.

Rayer compares warts formed of isolated papillæ very aptly to "coarse plush." He quotes from M. Rennes a remarkable instance of a wart of great length, and presenting the appearance of a band: "a band of agglomerated warts, from eight lines to an inch in breadth, extended from the upper and anterior part of the right side of the breast, underneath the clavicle, along the arm and fore-arm of the same side, till it reached the carpus, where it increased considerably in breadth, and finally overspread the whole palm of the hand."

446. *Causes.*—Warts frequently originate without apparent cause; at other times they seem to depend on local irritation of the integument. Such causes are, want of cleanliness, contact of foreign substances, exposure to cold, &c. Some persons exhibit an especial predisposition to the development of these productions. It is popularly believed that the blood proceeding from warts is capable of exciting their growth in unaffected

at that time on my finger. Since this period their structure has been investigated by Ascherson (*Casper's Wochenschrift*, 1835,) and more recently by Dr. Gustav. Simon, of Berlin (*Müller's Archiv.*, 1840.) The latter writer speaks doubtingly of their origin in all instances by hypertrophied papillæ, and states that they arise sometimes where there are no papillæ. I differ entirely from him in this opinion.

\* This interfibrous mesh is not present in all warts; when it is absent the fibres adhere but slightly by means of their surfaces, and are kept together by the thick rim of epidermis which surrounds them.

persons. Such a supposition is too absurd to deserve farther attention.

447. *Treatment*.—Warts are easily removed; the way to proceed in effecting this object is to cut off the top of the wart, and touch it daily with nitric or strong acetic acid; removing from time to time the stratum of disorganized epidermis with the knife. The cure is accomplished in a few weeks. Other substances capable of effecting the same object, but more slowly, are, the nitrate of silver, the juice of the chelidonium majus, &c.

Mr. Plumbe recommends the use of a small piece of blistering plaster, laid on the crown of the wart, and covered by adhesive plaster.

## CORNUA.

### Syn. *Horns*.

448. Horns are epidermic formations, which sometimes, though rarely, appear upon the surface of the skin; they are variable in diameter, and project to a greater or lesser length. They are produced on any part of the body, are usually solitary, and continue to grow during the entire lifetime of the individual, unless thrown off by ulceration.

Horns appear to be developed in two modes; *firstly*, by the formation of sheaths around elongated papillæ, as in warts; *secondly*, by the modification of the epidermic vesicles—namely, by their elongation, so as to form an epidermic fibrous structure. The first kind of horn (*the vaginated horn*) is in truth nothing more than a wart of immense growth. The second kind (*fibrous horn*) is identical in structure with a hair of gigantic magnitude, or rather with a bundle of hairs closely bound together, and adherent by their parietes. It resembles, in fact, the nasal horn of the rhinoceros. Both of these varieties are produced by hypertrophied papillæ.

A third kind of epidermic horn is formed after the manner of the spines of ichthyosis, by the apposition of successive laminæ. This *laminated horn* belongs, therefore, to the genus ichthyosis, and is described in that group under the name given to it by Willan—ichthyosis cornea.

The so-called horns (§ 514) sometimes met with on the head, and developed from the interior of a hair follicle, are nothing more than concretions of inspissated and altered sebaceous substance, modelled in shape by the interior and aperture of the follicle, and partially covered by the attenuated integument, which originally inclosed the sebaceous matter. I have seen productions of this kind so hard from desiccation as to resist the edge of the knife.

The following is a case in illustration of the sebaceous horn:—Louise Marino, an Italian peasant, fifty-four years of age, perceived, in the month of January, a small tubercle, of about the size of a millet seed, embedded in the integument of the root of her nose. The tubercle, was attended with a trifling degree of pain and pruritus, but continued to grow with considerable rapidity. On the thirtieth of October of the same year, it had reached the length of an inch, was of a grayish-brown colour, had the diameter of a writing-quill, was grooved along its under surface, and curved like the beak of a bird of prey. It adhered firmly, by means of a



narrow base, to the skin and subjacent areolar tissue. Dr. Portal removed it by incision; the areolar tissue at its base, the periosteum and bone, were perfectly sound.\*

449. *Causes.*—The cause of horns is some local irritation of the integument, which gives rise to hypertrophy of the papillæ of the dermis, and consequent inordinate production of epidermis.

450. *Treatment.*—The same as for corns. The sebaceous horns must be treated according to the plan laid down for sebaceous accumulations in general.

\* Il Filiatre, Sebezio, February, 1842.

## CHAPTER X.

## DISORDERS OF THE VASCULAR TISSUE OF THE DERMIS.

451. UNDER this head I propose to consider two disorders—namely,

Nævus,  
Purpura.

The former of these depends, obviously, on *hypertrophy of the vascular tissue of the dermis*; the latter, on *morbid alteration of the capillary vessels*. Nævus occupies by right a position among disorders of the cutaneous textures, but purpura is a disease of the entire vascular system, and is admitted into the present classification simply on account of the pathological change involved in its appearance upon the skin, and for the purpose of pointing out the pathognomic characters by which its confusion with other discolourations of the dermis may be prevented.

## NÆVUS.

Syn. *Teleangiectasia. Vascular nævus. Erectile tumours. Arterial nævi. Venous nævi. Nævus araneus. Nævus flammeus. Gefäßmuttermäler.* Germ.—*Signes. Taches de vin.* Fran.—*Mother's marks.*

452. The vascular rete of the dermis is liable to become dilated, and to give rise to the formation of red patches and slightly elevated tumours, called *vascular nævi*. Vascular nævi present considerable variety in relation to extent, tint of colour, and tumefaction. Occasionally the vascular dilatation is limited to a mere point, from which several enlarged venules pass off in different directions. This kind of nævus rarely increases in size, it is met with on the face and on the limbs, and from the peculiarity of its appearance, has been named *nævus araneus*. Proceeding upwards from this nævus araneus, the diseased spots may be found presenting every degree of size, and their dimensions are frequently so large, that they have been seen to cover the whole of one side of the face, the ear, and part of the scalp. The tint of colour of vascular nævi is dependent on two conditions—the extent of dilatation of the capillary rete, and the degree of excitation of the vascular system. Thus, if the capillaries be only moderately dilated, so as to offer little impediment to the circulation, and the latter be active, the blood will retain its arterial hue, and the colour of the nævus be brightly

and vividly red. If, on the contrary, the vascular rete be dilated in a high degree, the blood will travel slowly through the tortuous tubes, and assuming its venous character, the nævus will present a purple, and even a livid hue. Intermediate degrees of dilatation, or impediment to the circulation, will naturally produce different tints of red. Similar changes of colour are apparent in the same nævus, under different degrees of excitation of the vascular system. Thus, in a state of repose of the individual, the spot may be only moderately coloured and livid, while, in a state of temporary excitement, the spot will assume a most intense and vivid red. The circumstances which affect the colour, modify also the tumefaction of the nævus. In a state of repose it is ordinarily flaccid, and probably scarcely raised above the surface, but in a state of excitement of the circulation, it will become tense and tumid. In relation to tumidity, as great variety is met with among nævi as is found in their other characters. Some are not perceptibly raised above the level of the surrounding skin, while others, on the contrary, form prominent tumours.

Vascular nævi, when of small size, give rise to little or no inconvenience, but when larger, they are hot, painful, and throbbing. In the latter state, they communicate a distinct pulsation to the finger, synchronous with that of the heart's beat. Vascular nævi are sometimes stationary, but more frequently they increase slowly in size by the gradual extension of the morbid state of the capillary rete to the vessels of adjacent parts. Their growth, however, is not limited to the skin, for they are apt to extend more or less deeply into the subcutaneous tissues. Left to themselves they will sometimes continue the whole of life, without giving rise to any inconvenient results; at other times they may ulcerate and slough, or throw out a fungous growth, this change being accompanied by repeated hæmorrhage, and terminating fatally. At all times the hæmorrhage is troublesome, and even dangerous, when vascular nævi are accidentally wounded.

Dupuytren has the merit of first pointing out the analogy of structure of vascular nævi with erectile tissue, and since the announcement of this similarity, they have been commonly termed *erectile tumours*. These nævi have been described from the earliest times as mother's marks, and have been referred by the imaginative to the influence of moral emotion on the part of the mother during pregnancy. In pursuance of this romantic explanation, we still hear them spoken of, by the vulgar, as bunches of red and black currants, strawberries, raspberries, blackberries, lobsters, &c., and they gravely tell us that the mother, in these cases had a particular longing for the object represented.

From the above description it will be seen that all vascular nævi are identical in structure, and that differences, when they exist, are referrible to more or less dilatation of the vascular rete. Where the rete is dilated to a moderate extent, and the colour of the nævi is brightly red, we may call them, for the sake of distinction, *arterial nævi*, and where the capillary rete is very much dilated, and the colour is blue or livid, we may call them *venous nævi*. The term varicose nævi has been sometimes applied to the latter; but the use of this term is objectionable for two reasons: in the first place it would seem to indicate a difference of structure, which does not exist; and in the second place, the term is wanted for those bluish subcutaneous enlargements which consist in a plexus of small varicose veins, and are frequently associated with varix of larger veins.

As far as my observations have gone,—and I have dissected many vas-

ular nævi,—there is no addition to the normal number of capillary vessels in the affected part. They are enlarged in caliber, with corresponding hypertrophy of their coats, with enlargement of their meshes, with hypertrophy of the inter-vascular tissue, and dilatation of their appertaining arterial and venous trunks.

453. *Treatment.*—When the nævus is of large size, gives rise to little inconvenience, and advances but tardily in its growth, it had better be left alone, or simply treated with cold and styptic applications, with moderate pressure. When, however, these conditions are reversed, an attempt may be made to destroy it bit by bit, by pencilling a small portion of its surface, from time to time with nitric acid. In this way, in the course of time, a nævus of large size may be cured.

When the nævus is small, it may be removed by excision, or if it be of moderate size, and danger be anticipated from division of the arteries which supply its base, it may be dislodged by the operation proposed by Mr. Liston, which combines with incision the use of ligatures passed through its base, and firmly tied. This plan has the advantage over all others of getting rid of the morbid structure expeditiously, without the chance of hæmorrhage. In certain cases, the ligature passed through the base of the nævus may be used without the incision; and where the tumour is pedunculated, a simple circular ligature may be employed.

The spider nævi, and those of very small size, may generally be cured by introducing into them the point of a probe, armed with nitrate of silver, or potassa fusa, or a small fragment of either salt; while, in some instances, touching the exterior with the caustic will suffice for their destruction.

Dr. Marshall Hall has recommended the breaking up of the vascular structure of nævus by means of a cataract needle with cutting edges, avoiding any external openings, save that through which the instrument has entered. Several instances are recorded in which the carotid artery has been tied for nævi of large extent.

Numerous methods besides the above have been suggested from time to time for the treatment of vascular nævi, such as vaccinating the vascular growth; applying the potassa fusa; injecting them with dilute nitric acid; passing a seton through them; applying the actual cautery, quick lime, tar-tarized antimony, &c.

## PURPURA.

454. Purpura is a morbid state of the capillary system, characterized by the effusion of blood into the different tissues of the body, this effusion giving rise to the formation of sanguineous patches in considerable numbers, and of various size. The capillary vessels of the skin participate in this morbid disposition; hence purpura has obtained a place, by courtesy, among cutaneous disorders. When the sanguineous spots are minute, they are termed *petechiæ*, but when of larger size, *ecchymoses*. The spots of purpura are usually seated in the superficial layer of the dermis, more rarely the extravasation takes place beneath the epidermis, and in some cases ecchymoses are formed in the subcutaneous cellular tissue. The colour of the spots varies with the quantity of blood effused, and with their duration; petechiæ are usually red, passing with age through the various tints of purple, livid, reddish brown, and eventually disappearing as yellow stains; ecchymoses, from the larger quantity of collected blood, are

of a dark purple at first, becoming by degrees almost black, and then passing through the tints of reddish brown, greenish yellow, and yellow, until they vanish entirely. Both kinds of spots are darker in the centre than at the circumference, fading in the latter into the tint of the surrounding skin.

455. Purpura admits of classification into purpura sine febre and purpura febrilis. Of the former there are five varieties—namely, purpura simplex, purpura urticans, purpura hæmorrhagica, purpura senilis, and purpura cachectica.

#### PURPURA SIMPLEX.

456. In purpura simplex, the petechiæ and ecchymoses are developed without apparent cause, and with but trifling constitutional disorder. They are sometimes simultaneous, but more frequently successive in their appearance, and they occur either on part, or upon the whole surface of the body. When successive, they present at the same moment all the tints of colour characteristic of progressive stages of their duration, and when partial in their occurrence, are usually seen upon the lower extremities. The effused blood is ordinarily absorbed in the course of one or two weeks, but when the disease appears in successive attacks, the spots may continue apparent for several months. When petechiæ occur on the face, they are also seen upon the conjunctiva, and in the mucous membrane of the mouth and fauces.

#### PURPURA URTICANS.

457. Purpura urticans is recognised by the existence of oval and roundish elevated spots of a light red colour, in combination with the petechiæ and ecchymoses of purpura simplex. The elevated spots bear some resemblance to those of urticaria, and the similarity is farther increased by the tingling sensation with which they are sometimes accompanied. The association of urticaria with purpura is not unfrequent, either preceding or accompanying the attack. The prominent spots differ from simple urticaria in their deeper tint of red, the deeper red or livid hue which they assume at their decline, and also in their association with true petechiæ. This affection appears usually on the legs, and is often attended with œdema of the subcutaneous cellular tissue. It is the least serious of the forms of purpura, and is prolonged by successive attacks for about a month.

#### PURPURA HÆMORRHAGICA.

458. Purpura hæmorrhagica is a much more severe form of disease than the two preceding, and is especially characterized by an hæmorrhagic state of the entire system. This disposition is shown in the occurrence of hæmorrhage from the mucous membranes; there is bleeding from the nose, bleeding from the mouth with spongy gums, bleeding from the fauces, hæmoptysis, hæmatemesis, hæmorrhage from the intestinal canal, hæmaturia, and metrorrhagia, one or other of these hæmorrhages being predominant in different cases. The ecchymoses and petechiæ are more

abundant upon the skin than in the simpler forms; they are general in distribution, and the susceptibility to extravasation is so great, that ecchymoses occur from the slightest pressure on the skin. Considerable bleeding follows the most trifling wound, and collections of blood frequently form beneath the integument.

Purpura hæmorrhagica is accompanied, and often preceded, by disorder of the digestive organs, by pains in the head, loins, and pit of the stomach, nausea, constipation, and great lassitude and languor. Its duration is uncertain; where it is likely to terminate favourably, it may continue for a lengthened period, but where it tends to a fatal close, the legs become œdematous, and effusions take place into the serous cavities. Death is not unfrequently sudden in its consummation from repeated and abundant loss of blood.

#### PURPURA SENILIS.

459. Dr. Bateman has applied this designation to a kind of purpura which he observed a few times in elderly women. "It appears," he says, "principally along the outside of the arm, in successive dark purple blotches, of an irregular form, and various magnitude. Each of these continues from a week to ten or twelve days, when the extravasated blood is absorbed. A constant series of these ecchymoses had appeared in one case during ten years, and in others for a shorter period; in all, the skin of the arms was left of a brown colour. The health did not appear to suffer; nor did purgatives, bloodletting, (which was tried in one case, in consequence of the extraordinary hardness of the pulse,) tonics, or any other expedient, appear to exert any influence over the eruption." I have seen these cases repeatedly in old women, but have not deemed them of sufficient importance to require treatment. Rayer remarks that he has observed them in old persons of both sexes, and continues, that they last longer than a month. He adds, moreover, that these cases must not be confounded with true purpura affecting the aged.

#### PURPURA CACHECTICA.

460. Under the designation of purpura cachectica are included all those cases in which petechiæ and ecchymoses occur upon the skin, as a consequence of a reduced and debilitated state of the system, from whatever cause the latter may arise. We frequently see instances of this kind during the last stage of various diseases, as of dropsies, or whenever the venous circulation is obstructed.

#### PURPURA FEBRILIS.

461. Purpura febrilis is denoted by the well-marked fever, and general constitutional disorder by which it is preceded and accompanied. All the ordinary symptoms indicating morbid disturbance of the nervous system are present—namely, pains in the head, back, and limbs, rigors, and sense of oppression; the pulse is quick, there is nausea and vomiting, constipation, a dry tongue, and diminished secretions. On the third or fourth day

from the invasion of the precursory symptoms, petechiæ and ecchymoses begin to appear in the skin, and continue to be formed until the body is more or less covered with purple spots.

When these symptoms are present without hæmorrhage from the mucous membranes, the case is one of *purpura febrilis simplex*; but when, as sometimes happens, hæmorrhages from the different mucous surfaces complicate the affection, it then becomes one of *purpura febrilis hæmorrhagica*.

A variety of purpura is occasionally seen, in which a number of erythematous patches precede the hæmorrhagic spots, and upon these, as well as upon the intervening uncoloured skin, the petechiæ and ecchymoses appear.

Febrile purpura may occur at all periods of life, and in every constitution; its ordinary duration is from two to three weeks, and it has sometimes been observed as an epidemic.

462. *Diagnosis*.—The characters already mentioned are sufficient to distinguish purpura from every other disorder affecting the skin. The spots differ from congestions by remaining unchanged under the pressure of the finger, and they may be distinguished from flea-bites, by the central dark point of the latter, and the surrounding areola. Petechiæ are uniform in colour, and many of them are smaller than flea-bites.

463. *Causes*.—Purpura is a disease of debility of the nervous powers, although not unfrequently associated with increased activity of the arterial system. It occurs at all periods of life, but is most common in children, and particularly in such as are weakly and unhealthy. Occasionally it is met with in persons who enjoy an apparently sound health; or it may be developed in association with constitutional disorder, as in small-pox, and even after vaccination. It is not unfrequently observed as the consequence of a long continuance of the erect posture. I have lately seen a well-marked case of purpura simplex, affecting both legs as high as the knees in a compositor otherwise in average health. The disease is sometimes hereditary.

464. *Prognosis*.—Purpura being an indication of debility of the nervous powers, is always a disease of which the sequel must be regarded with anxiety. The favourable indications are those which denote a sound and uninjured constitution, but where the latter is feeble, the prospect is most unsatisfactory. Purpura urticans is the least serious of the varieties; purpura simplex follows next; while the hæmorrhagic and cachectic forms offer reasonable grounds for apprehension. Purpura febrilis, though sometimes suddenly fatal from sanguineous extravasation in the brain, is more amenable to treatment than the chronic forms.

465. *Treatment*.—The treatment of purpura is founded on the general principles of management of constitutional disorders. If the subject be strong and plethoric, bleeding is followed by the best results, and should be aided by antiphlogistic remedies and regimen. When, however, the tone of the nervous system is obviously deficient, tonics and acidulated drinks are indicated. The treatment proposed by Willan, is too exclusively tonic; purgatives are always indicated by the nausea, constipation, and pain at the epigastrium, which attend the disease; and a course of purgative remedies will, in most cases, bring the case to a successful issue. Purgatives have the advantage of being applicable in a debilitated as well as in a robust state of system. The stools in this disease are, without admixture with

blood, of a very dark colour, and exceedingly offensive. In purpura febrilis, bleeding succeeded by antiphlogistic medicines is attended with great benefit, and is often indispensable.

The general treatment of purpura sine febre should be accompanied by the use of the cold plunging or shower bath, if the patient can bear it, and if not, of sponging the surface of the body with water containing salt or vinegar. Tepid sponging with water containing vinegar is also applicable in the febrile variety.

Accidental hæmorrhages complicating purpura must be treated according to the general principles usually applicable to similar cases, unconnected with this disease.

Mr. Plumbe has given an excellent digest of cases of purpura, with their treatment; his observations on this subject are deserving of attentive perusal.



## CHAPTER XI.

## DISORDERED SENSIBILITY OF THE DERMIS.

## PRURITUS.—HYPERÆSTHESIA.

466. UNDER the influence of disordered nervous excitability, depending sometimes on constitutional and sometimes on local causes, the sensibility of the skin is altered, and a painful sensation of itching, or pruritus, produced. This disordered sensation is independent of local disease, the skin retains its wonted appearance and structure, and the affection is generally referrible to sympathy with an excited condition of some distant part.

467. Pruritus is sometimes *general*, but more frequently *local*; of the latter, several forms deserve especial attention. These are,

Pruritus ani.  
 „ scroti.  
 „ præputii.

Pruritus urethræ.  
 „ pudendi.

## GENERAL PRURITUS.

468. In general pruritus, the peripheral extremities of all the cutaneous nerves of the body are, in turn, the subject of altered sensation. The pruritus is excited by the most trivial causes, and continues unabated for hours, depriving the sufferer of every chance of comfort and repose. The only period of the day that persons affected with this distressing complaint can look forward to for an interval of quiet is the morning. As soon as they have taken dinner, or the most trifling stimulus, their worrying tormentor begins. Alteration of temperature has the same effect; they suffer immediately that they change their dress, and especially so soon as they experience the warmth of bed. Scratching, instead of relieving, serves only to augment the evil, and they are kept in a state of wretched discomfort and excitement during the greater part of the night, to forget their annoyance at last, only in a sleep made irresistible by absolute exhaustion.

It is interesting to remark the extent to which these painful sufferings are subject to the influence of the nervous system. So long as the mind is engrossed with agreeable occupation, or is diverted from the disorder, the morbid sensation sleeps; but the instant that the thoughts are turned

to the affection, the pruritus is aroused, and rages with severity. The apprehension of an attack will, in this way, often excite it, and every effort for its relief will but prolong its continuance.

The attacks of general pruritus are variable in length of duration; sometimes they continue for hours without alleviation, while at others their periods are shorter, and broken by intervals of calm. The disorder may last for several months, and even for years.

General pruritus is usually the consequence of irritation of one or other of the mucous membranes of the body. In some instances, the gastrointestinal mucous membrane is in fault; in others, the pulmonary mucous membrane; and in others, again, the genito-urinary. The affection is sometimes associated with amenorrhœa, or dysmenorrhœa, and not unfrequently with pregnancy.

#### PRURITUS ANI.

469. Pruritus ani is a severe and distressing itching of the mucous membrane of the verge of, and immediately within, the anus, and of the neighbouring integument. The itching is greatest at night, commencing shortly after the sufferer has retired to bed, and continuing for several hours. There is no trace of morbid alteration of the skin, but sometimes the parts are excoriated by scratching, and a morbid secretion is poured out, which increases the irritation and gives rise to erythema of the surrounding skin. Unless relieved by treatment, pruritus ani will continue for many months, and even for years.

The *causes* of pruritus ani are numerous, being partly referrible to the state of the constitution, and partly to local irritation. Among those of the latter class, are, ascarides, hæmorrhoidal swellings, fistula, and chronic inflammation of the mucous membrane of the rectum. The general causes are, sedentary occupation, disordered health, heat of weather, irregularities of diet, cessation of the catamenia, &c. Dr. Lettsom was of opinion, that in certain cases, this disease acted as a useful counter-irritant, and he records several instances in which visceral and cerebral congestions were relieved by its attack.

#### PRURITUS SCROTI.

470. Pruritus scroti is identical in most respects with the preceding affection, and originates in similar causes. It is usually dependent upon the existence of ascarides in the rectum, or upon a morbid and irritating fluid secreted by the abraded skin. In attempts made to relieve the pruritus by scratching, painful excoriations are often produced.

#### PRURITUS PRÆPUTII.

471. This form of pruritus depends upon irritation, usually excited by morbid secretion from the mucous membrane of the prepuce. The disease originates in neglect, and may be relieved by attention to cleanliness, and frequent alkaline ablutions. It occurs, for the most part, in the summer season, and is exceedingly distressing whilst it continues.

## PRURITUS URETHRÆ.

472. Pruritus urethralis occurs at the extremity and along the canal of the urethra in females, and gives rise to great discomfort and annoyance. This troublesome affection usually depends on some irritation of the mucous membrane of the bladder, and is analogous to the pruritus which occurs at the meatus urinarius of the male in calculus of the bladder.

## PRURITUS PUDENDI.

473. Pruritus pudendi is a most distressing affection. It invades chiefly the external labia and the vulva, but sometimes extends inwards along the vagina, giving rise to excessive discomfort, and often exciting symptoms approaching to nymphomania.

This disease affects all ages: I have twice seen it in young children; more frequently it occurs at the period of puberty, or of the cessation of the catamenia. It is sometimes a very distressing accompaniment of pregnancy, invading at about the fourth month or after parturition. Among other causes which have been indicated as originating this disease, are, ascarides in the rectum, hæmorrhoids, and varicose veins of the labia or vagina. Pruritus pudendi is sometimes experienced as a concomitant of lepra vulgaris, when that disease invades the mons veneris, or the parts adjoining the vulva.

474. *Diagnosis.*—Pruritus may be distinguished from prurigo by the absence of the papulæ which are pathognomic of the latter. From other affections it is at once recognisable by the sound state of the skin.

475. *Treatment.*—The treatment of pruritus must be general or local, according to the nature of its cause. The general treatment must be directed to the regulation of the secretions; in a debilitated state of the system, tonics will be found of service, and sedatives are in most cases indispensable. The diet should be light, easily digestible, and nutritious, and all stimuli avoided. The best local application for soothing the pruritus is a weak solution of acetic acid, or lemon-juice mingled with water.

For the local varieties, constitutional treatment is equally necessary with local. In pruritus ani, if there be symptoms of congestion of the mucous membrane of the bowels, leeches should be applied to the verge of the anus, and the region subsequently fomented. If ascarides be present, they must be destroyed by a turpentine enema. I have found an opium injection to relieve the irritation after all other means had failed. The local remedies most serviceable in pruritus ani are, a weak solution of acetic acid, or bichloride of mercury, solution and tincture of opium, creosote, the nitrate of mercury ointment, &c. The bichloride of mercury is contra-indicated, if there be abrasion of surface.

Besides the general remedies applicable to pruritus ani, a lotion of acetate of lead, of sulphate of zinc, or pencilling with the compound tincture of benjamin, will be found useful in pruritus scroti.

Prurigo urethræ may best be relieved by the application of two or three leeches to the adjoining mucous membrane, followed by poppy fomentations. If these means should fail, cold astringent lotions may be tried.

Prurigo pudendalis especially requires medication adapted to its cause. Where the presence of the fœtus in utero is the only apparent irritation, we must rely upon the restoration of the secretions and the administration of sedatives. If there be heat and dryness of the vulva, symptoms which indicate congestion of the mucous membrane of the vagina, leeches should be applied to the inner surface of the labia, and fomentations of poppy-heads afterwards used. I have employed the creosote lotion and a solution of the bichloride of mercury with advantage in this form of pruritus. Frequent ablutions with tepid water, containing a small quantity of subcarbonate of soda, supersulphate of alumina, or sulphuret of potash, are also beneficial. In a very troublesome case, when every other remedy had failed, I succeeded in removing the pruritus by the application of a blister upon the upper part of the thigh, near to the vulva. M. Trousseau praises the effects of injections as warm as the patient can bear; he remarks, that he has seen great benefit result from the injection of hot water simply; and that the solution of bichloride of mercury used hot has proved successful after years of unavailing attempts with other remedies. Lisfranc recommends, that in cases where the pruritus bears relation to the menstrual periods, several small bleedings should be practised successively, and these, after a few repetitions, he never found to fail. He also advises nitrate of silver in the form of lotion and injection.

## CHAPTER XII.

## DISORDERED CHROMATOGENOUS FUNCTIONS OF THE DERMIS.

## MACULÆ.

476. UNDER this head, corresponding with the order Maculæ of Willan, are assembled those affections of the cutaneous textures which are characterized by discolouration of the skin. The precise seat of these alterations is the rete mucosum and papillary layer of the dermis. The cause may be referred to three principal conditions; firstly, the original organization of the individual; secondly, alteration of function of the dermis without apparent change of structure; and thirdly, alteration of nutrition of the epidermic cells of the rete mucosum.

477. Maculæ may be arranged in three principal groups—namely, 1. Those which are characterized by *Augmentation* of the natural pigment of the rete mucosum; 2. Those in which there is *Diminution* of pigment; and 3. Those which present a *Morbid alteration* of pigment. To these characters, which are indicative of important differences, both as regards quantity and kind, in the natural pigment of the skin, I propose to add a fourth group, with the view of including that remarkable alteration in the colour of the skin which is produced by the internal use of nitrate of silver. The seat of this discolouration is wholly different from the preceding, inasmuch as it occupies the papillary layer of the dermis, and may, I think, very properly be considered under the designation of *Chemical colouration* of the skin.

1. *Augmentation of Pigment.*

## NIGRITIES.

478. When we compare the distribution of the pigment of the rete mucosum throughout the members of the human family, we are struck by two remarkable extremes of difference as illustrated in the jetty black of the tropical zone and the fair complexion of the natives of colder climates. Between these two extremes, every shade of tint may be found in intermediate latitudes; and, indeed, by the alteration of the solar influence, the pigment may be increased in those of fair skin, and, on the other hand, may be diminished in the dark to a very considerable extent; but we require not to proceed farther than our own hearths for an illustration

of the fact, that the blonde complexion may be rendered dark by the stimulation of the light during the summer months, and the quantity of pigment will be again reduced during the winter season. To state this fact in physiological language, the activity of the functions of the skin is increased during the summer, and under the stimulus of the sun; while in the winter season it is diminished to its minimum. One of the functions of the skin is the secretion of pigment; and under the influence of the stimulus of light and heat, and of the sun's rays, this function is greatly augmented, and the skin, consequently, assumes a darker tint.

But it is scarcely necessary to remark, that the phenomena involved in the functions of the skin are not wholly referrible to external agencies. That which the stimulus of light and of the sun's rays is to the skin, under natural circumstances, the stimulus of morbid action may be in a disordered state of the system. Hence we occasionally meet with instances in which the skin is altered in its colour in a brief period of time, either temporarily or permanently, as one of the consequences of disease, this alteration being confined to a limited region, or being more or less generally diffused over a large surface.

Again, it is clear that especial organization must also contribute very largely to the differences of tint which are observed in the human race. The long winter of the colder climates, or long imprisonment in a darkened cell, would not blanch the skin of the negro any more than would the long blaze of light and the intense heat of the torrid zone confer upon the skin of the European the rich jet of the native African. We are yet, however, to learn how far colonization for a number of years might not give rise to these results. It is to especial organization that we must have recourse, to explain the great difference in shade of colour that exists among the inhabitants of the same island, and the differences which we often meet with in different parts of the body of the same individual. In persons of dark complexion, certain parts of the cutaneous surface always present a deeper tint than the rest. One of the natural changes occurring at puberty is the alteration of the skin of the sexual apparatus to a brown colour, more or less deep in different individuals, while, in rare instances, the skin in this region presents a deep black. Haller, in his *Physiology*, relates a case of this kind. The alteration of colour which takes place in the areola around the nipple of pregnant women is an analogous change. In some persons, the pigment secreted in the genital region is partial in its distribution, and appears in the form of patches of various size. Again, patches of a darker colour than the surrounding skin, but identical in every other respect, may be developed upon any part of the surface of the integument in individuals of every shade of complexion.

### PIGMENTARY NÆVI, OR MOLES.

Syn. *Pigmentmuttermäler*. Germ.

479. Besides the patches before described, which are even with the surrounding skin, and in every way identical in structure, excepting as regards the increased production of pigment, there are other discoloured spots and patches found upon the integument, which are termed *pigmen-*

*tary nævi.* The subject of *nævus*, or mother's mark, does not belong to this division of cutaneous affections; but it is necessary here to allude to the spots in question, on account of their dissimilarity to the rest of *nævi*, which latter are vascular alterations of the skin, (§ 452.) Pigmentary *nævi*, on the other hand, are not more vascular than the rest of the integument; they are characterized by a yellowish or brownish, and sometimes a black colour, are very slightly or not at all raised above the level of the skin, and are generally covered with short bristly hairs. The dark colour of these patches evidently depends on augmentation of the pigment of the rete mucosum, and deposition of pigment in the papillary layer of the dermis. Pigmentary *nævi* are very various in point of size, sometimes they are exceedingly small, and at other times so large as to cover nearly one-half of the face, or a considerable extent of the trunk of the body, or of one of the limbs. They are met with on all parts of the surface, but particularly on the face and back. When they are raised above the level of the adjacent surface, the elevation depends chiefly on the presence of the hair-follicles, and their contained hairs, which give an increased thickness to the skin.

Although perfectly innocuous in their nature, pigmentary *nævi* are generally unsightly; in such cases, the medical practitioner is appealed to, and it becomes necessary to adopt measures for their cure. For this purpose all applications, particularly those of an escharotic kind, are worse than useless, for should they, after a painful process, succeed, an indelible scar, more ugly than the mole, is left behind. The only resource left both to the surgeon and the patient is the removal of the spot with the bistoury. When this is effected by two incisions enclosing an elliptical portion of the skin, in the direction of its natural folds, all trace of the operation is speedily obliterated.

## 2. *Diminution of Pigment.*

### LEUCOPATHIA.

480. As, in the preceding section, we had occasion to reflect upon the production of an excess of pigment in the skin, originating in causes wholly unknown, so now we have to consider an opposite state as regards the pigment—namely, that in which there is a diminution or total absence of this production, *leucopathia*. The former state, when unassociated with disease, is usually accompanied with robust health and augmented strength in the individual, while on the other hand, destitution of the natural pigment is indicative of debility of the nervous and vascular systems, and weakness of the physical and moral energies. Diminution of the natural pigment of the skin may be congenital or accidental, and in distribution it may be general or partial.

#### GENERAL LEUCOPATHIA; ALBINISMUS.

481. Albinos are met with among all races of mankind, among the dark-complexioned nations of the south, as well as among the fair-haired inhabitants of the coldest regions of the earth. They are remarkable for

a congenital and entire absence of all pigmentary secretion, not only in the rete mucosum of the skin, but also in those other parts of the body which are usually characterized by their dark colour. The skin in these persons is of a milk white colour, the hair is blonde, and usually soft and silky; sometimes, however, it is harsh and wiry in texture, and the entire body is covered with a soft white down. The eyes are red, from the absence of pigment in the choroid membrane, and the iris presents a pinkish tint. There is great intolerance of light, the pupil is small from the contraction of the iris to exclude the luminous rays, and the person bows his head habitually towards the ground, in order to shadow the retinae as much as possible from the light. At dusk, however, when the luminous rays are fewer in number, the albino rears his brow, and walks erect, his eyes are no longer overwhelmed by excess of light, and he is enabled to see surrounding objects in the night of other men. The albino is usually short of stature, and weakly in his powers of body and mind.

Albinism is sometimes accidental in its development, arising, without any apparent cause, upon some part of the body, and thence extending to the entire surface. Instances of accidental general leucopathia have only been observed among the natives of Africa.

#### PARTIAL LEUCOPATHIA ; VITILIGO.

482. Vitiligo is the designation applied to partial leucopathia, or the diminution or absence of pigmentary secretion upon one or more parts of the body. As a congenital peculiarity, it is most frequently observed among the darker races of mankind, in whom it is likely to attract most attention; it also occurs, but more rarely, among the white races. Several instances of the "pied negro" have been recorded, and such defects of development are not very uncommon among the African race. When the patches are seated on the scalp, the hair participates in the change, and is produced of snowy whiteness.

Partial leucopathia is sometimes accidental in its development, occurring without apparent cause as one of the natural changes of the system. A remarkable case of this kind, which happened in a native of Virginia, is recorded in the fifty-first volume of the Philosophical Transactions.

In Europeans, this alteration is most frequently met with on the scrotum of old persons, where it appears under the form of irregular patches, and sometimes of longitudinal stripes. M. Guyon observed partial leucopathia in Algiers, where it is apt to take place in Europeans as well as in the Arabs.

Franck has applied the term, most erroneously, to those white cicatrices which are seen upon the abdomen in dropsical persons, and in pregnant females. The former he names vitiligo hydropicorum, and the latter, vitiligo gravidarum. But these white lines are evidently cicatrices, and are produced by the rupture and destruction of the skin, and with it of the rete mucosum.

Leucopathia is not amenable to medical treatment.



3. *Morbid alteration of Pigment.*

483. The affections which may be arranged under this designation are four in number—namely,

Ephelis,  
Lentigo,  
Chloasma,  
Melasma.

## EPHELIS.

Syn. *Sun-burn.* *Sommersprossen.* Germ.

484. The term ephelis (ἐπι ἡλίου, the sun) is intended to express that change which is produced on the skin of many persons by exposure to the influence of the sun's rays. This discolouration is developed in small patches of irregular form, and of a variable tint of brown, upon those parts of the body, as the face, neck, shoulders, hands, &c., which are unprotected by dress. The spots of ephelis are most remarkable in children and women, and in persons possessing a thin and delicate skin. They disappear during the winter season.

Peter and Joseph Franck indicate a difference of appearance in the spots by the terms *ephelis umbrosa*, and *ephelis lentigo*, the former referring to the irregular brown patches, and the latter to circular yellow spots, somewhat resembling those of lentigo. Rayer, moreover, constitutes the mottled appearance seen upon the legs and thighs of women who sit over a charcoal brazier a third variety, under the name of *ephelis ignealis*.

## LENTIGO.

Syn. *Freckles.* *Sommersprossen.* Germ.

485. Lentigo has received its name from the lentil-shaped spots which characterize the affection; in popular language they are called *freckles*. Freckles are small, round, yellow, or greenish yellow spots, of various size, but rarely larger than the diameter of a split pea. They are seated in the rete mucosum, and are most abundantly distributed upon those parts of the body which are exposed to the influence of the light, as the face, the neck, the hands, &c. On these parts they are sometimes assembled in thick clusters, which form patches of considerable size, and are very unsightly. They are also met with on those regions of the body which are usually protected by the dress.

Lentigo is a congenital affection, appearing soon after birth, and continuing for the rest of life, or subsiding and disappearing at the age of puberty. Sometimes the spots vanish at other periods, and without appreciable causes. They are almost peculiar to persons of light complexion and hair, and are especially frequent in those whose hair is red.

The diagnosis between lentigo and ephelis is the prominence of the

former, its independence of season, and its accustomed seat in the skin of persons of light complexion. Ephelis, on the other hand, disappears during the winter, is excited by the sun's rays, and occurs in persons of all complexions. Both affections are irremediable by medical means.

### CHLOASMA.

Syn. *Pityriasis versicolor*. Willan. *Maculæ hepaticæ*.  
*Leberflecke*. Germ.

486. Chloasma is characterized by the development of one or more patches, of irregular form and size, and of a pale or saffron yellow, or brownish yellow colour, upon any part of the surface of the body, particularly on the face, neck, and trunk. The seat of discolouration is the rete mucosum; it is accompanied by a slight degree of local inflammation, and lasts from a few days to several months.

Chloasma first makes its appearance in the form of small spots, of a dull, reddish colour, which increase in size, and present a yellow tint, approaching more or less to a saffron, or brownish yellow hue. These spots are at first distributed irregularly upon the cutaneous surface, they then enlarge and communicate with each other, so as to form patches of considerable extent. Indeed, these patches are sometimes so extensive that they may be mistaken for the sound skin, while the intervening parts of the natural hue may be regarded as the discoloured integument. They are frequently developed without accompanying symptoms, at other times they are attended with considerable itching, which continues throughout their course, and gives rise to great annoyance; for the more the parts are scratched, the greater the itching becomes. The pruritus is greatly increased by mental emotion, by impending catamenia, by stimulating food or drink, and by the warmth of bed, and is often exasperated at the latter period to such a degree as to deprive the sufferer of all possibility of sleep. When the disease subsides, desquamation of the epidermis ensues, and is repeated several times after the total decline of the symptoms.

487. *Diagnosis*.—There is little danger of mistaking chloasma for any other cutaneous affection; its yellow colour, the troublesome pruritus, and the mealy epidermic exfoliation, are its characteristic signs. In pityriasis there is desquamation, though of a different kind—namely, of true scales, but there is no alteration of colour, and little pruritus.

488. *Causes*.—Chloasma may occur at all ages, and in both sexes, but is most frequent in women, and particularly in those who possess a fair and delicate skin. The most frequent cause of the affection in females is uterine irritation, induced by impending catamenia, amenorrhœa (*maculæ amenorrhœicæ*), pregnancy (*maculæ gravidarum*), &c. It is by no means uncommon to observe chloasma a short time previously to the appearance of the catamenia, but the disease ceases as soon as the latter are established. In like manner, the affection sometimes lasts through a considerable period of pregnancy, invading at its commencement, and terminating in its course; or commencing at a later period, and ceasing after the completion of parturition. Other exciting causes of chloasma are,

gastro-intestinal irritation, stimulating food and drinks, hepatic irritation, &c.

489. *Treatment.*—The indications for treatment are the removal of the cause, and soothing the local irritation. In effecting the first object, the usual remedies for uterine irritation must be employed, when the uterus is the erring organ; for irritations of the alimentary canal, gentle laxatives will be required, with diluents, and abstinence from stimulating diet. The medical treatment, where no such constitutional cause is apparent, should consist of the milk of sulphur; in drachm doses, once in the day, internally; and a simple or sulphur bath two or three times a-week. Wherever practicable, the sulphuretted vapour douche will be found a valuable remedy.

## MELASMA.

Syn. *Pityriasis nigra*. Willan.

490. Melasma is an alteration of the chromatogenous function of the skin analogous to chloasma, and differing from the latter only in the darker colour of the morbid pigment. Melasma is a rare disease, and seems only to have been observed in persons of weakly constitution. It makes its appearance in the form of blackish patches, of irregular size, upon one, or several parts of the body. The affected skin is dry, and granular to the touch, and the epidermis cracks and desquamates in furfureous scales. On the fall of the morbid epidermis, the newly-formed membrane usually presents the normal tint.

Willan observed this affection in children born in India, and brought to this country, and regarded it as a variety of pityriasis; *pityriasis nigra*. In Willan's cases, the disorder "commenced in a partially papulated state of the skin, and terminated in a black discolouration, with slight furfureous exfoliations. It sometimes affected half a limb, as the arm or leg, sometimes the fingers and toes." Alibert describes and delineates it as a discolouration of the skin, under the name of "ephelide scorbutique;" and Rayer assigns to it the title under which it is considered in this place. The latter author remarks on its frequent occurrence in association with pellagra, and observes that it "appeared among a certain number of individuals of both sexes, and of all ages, in the epidemic of Paris, in 1828."

The same characters which distinguish chloasma from pityriasis form the principal diagnostic characters of this disease; substituting the yellow tint of the former for the black of melasma.

### 4. *Chemical colouration of the Dermis.*

#### OXIDE OF SILVER STAIN.

491. Persons who have taken nitrate of silver for a certain length of time are liable to be affected with alteration of colour of the skin. In the first instance, this alteration consists in the suffusion of the surface with a bluish tint, which subsequently becomes of a greenish slate colour. The discolouration takes place upon all parts of the surface of the body

at the same time, but is most remarkable in those regions which are exposed habitually to the influence of light, as the face and hands; and in the latter situations it not unfrequently assumes a more or less deep black. The colour is curiously modified in certain localities by admixture with red; hence, in the conjunctiva, and on the lips, it presents a livid brown tint, and on the general surface, it is much deepened by those causes which, under other circumstances, would produce pallor; for the same reason, the discolouration is more apparent upon persons naturally pale than in those who possess a fresh tint.

Once established, the discolouration produced by nitrate of silver lasts for the entire life of the individual, without alteration. In some few instances only it has been observed to diminish slightly in the course of years.

## CHAPTER XIII.

## DISEASES OF THE SUDORIPAROUS GLANDS.

492. Our knowledge of the existence and nature of the sudoriparous system is comparatively recent. It was first made known by the researches of Breschet and Roussel de Vauzeme, and their discovery has thrown much light on the pathology of the sudoriparous organs. It had long been observed by dermatologists, that the perspiratory secretion may become morbidly augmented without fever, and without apparent visceral disease, a disorder which has been termed *ephidrosis*. The sweating sickness which prevailed in England during the sixteenth century, and which still continues to make its appearance from time to time in France, receives much elucidation from our knowledge of the anatomy and physiology of the sudoriparous organs. The observation of this function will probably discover to us also certain morbid phenomena, which may be referred to deficiency of perspiratory secretion, and numerous instances are recorded of alteration in the physical properties of the secretion. So that the diseases of the sudoriparous system may be referred to the three heads which are generally applicable to secreting organs—namely,

Augmentation of secretion,  
Diminution of secretion,  
Alteration of secretion.

1. *Augmentation of Secretion.*

## SUDATORIA.

*Ephidrosis.*

493. Sudatoria is an excited action of the sudoriparous glands, attended with symptoms which indicate inflammatory determination. It is characterized by excessive perspiration, the perspiratory secretion being altered in its qualities; by more or less redness of the skin; by heat, and tingling or itching; and by frequent shooting and lancinating pains. When the disease is general and acute, it is attended with febrile symptoms, and often with the development of serous vesicles, or sudamina. § 295.

494. Sudatoria presents two principal varieties—namely,

Sudatoria simplex,  
„          maligna.

## SUDATORIA SIMPLEX.

Syn. *Ephidrosis*. *Sudatoria miliaris*. *Miliaria*. *Miliaria rubra*. *Miliaria alba*.

495. Simple sudatoria, or ephidrosis,\* is a subacute affection, sometimes general, but more frequently partial in its attack. When general, it is apt to be accompanied, after the lapse of three or four days, by sudamina, constituting that form of the disorder termed *sudatoria miliaris*. These vesicles first make their appearance on the neck, then on the trunk and abdomen, and then on the skin of the arm-pits, and inner sides of the thighs. The disorder is accompanied by febrile symptoms, and torpor of the alimentary canal, and its sudden arrest is sometimes followed by visceral congestion. Subacute sudatoria usually terminates in a week or a fortnight.

*Chronic sudatoria* is less apt to give rise to constitutional symptoms, and to the production of miliary vesicles. "M. Dupont has published an account of a curious case of a chronic general ephidrosis, which lasted upwards of six years. The woman who was thus affected became pregnant during this time, and was happily delivered of an infant, which she nursed herself. This ephidrosis, which, according to him, was independent of any other affection, after having been fruitlessly combated by various remedies, yielded at last to extract of aconite, given at first in doses of half a grain, and gradually raised till sixteen grains a day were taken."†

*Partial sudatoria* is more common than the general form; sometimes it is confined to the feet alone, at other times to the axillæ, perineum, or scalp, and "Hartmann cites the singular fact of a woman who, during pregnancy, perspired only on the right side of her body."‡

The perspiration in sudatoria is acid and disagreeable in odour, and so profuse as to produce softening and opacity of the epidermis, which, on the soles of the feet is often corrugated, like that of washerwomen. The disease is most commonly met with in the summer season, occurring during extreme heat, excessive exercise, &c.

## SUDATORIA MALIGNA.

496. The malignant form of sudatoria appears to correspond with the sweating sickness of the sixteenth century—a disorder which is no longer met with in England, but which would seem, by the numerous reports made to the Académie de Médecine, to be still prevalent in France. The disease is infectious and contagious, and occurs epidemically. The following brief notice of the disorder is an abstract of the description given by Rayer.

Malignant sudatoria is commonly associated with inflammation of the stomach and intestines; inflammation of the lungs; inflammation of the bladder, or inflammation of the cerebro-spinal axis. When the digestive organs are especially affected, the disease is characterized from the commencement, or at an early period, by a severe constriction at the epigastrium, spasm of the diaphragm affecting respiration, distressing anxiety,

\* Der, ἐπι ιδρῶσει, to perspire.

† Rayer, Translation, page 920.

‡ Rayer, loc. cit.

deeply drawn sighs, feeling of weight on the chest, with a sense and alarm of suffocation, and, in some cases, vertigo, violent headach, and nausea. When the lungs are the seat of inflammation, there is a deeply seated pain in the chest, crepitating rattle in the bronchi, oppressed breathing, frequent full pulse, and sanguinolent expectoration. When the bladder is inflamed, there are pains in the hypogastrium, difficulty in passing the urine, with high colour, and deficiency of that secretion. And when inflammation of the cerebro-spinal axis is present, there is headach, flushed countenance, full, starting eyeballs, throbbing temples, contracted or fixed pupil, coma, and convulsions.

These symptoms occasionally prove fatal in twenty-four or forty-eight hours, or the disease may run on for two or three weeks.

497. *Treatment.*—The indications for treatment in sudatoria are, to restore the secretions, to allay the irritation of the inflamed perspiratory organs, and to engage with local congestions as they may arise. The first of these indications is effected by means of abstinence, diluents, and the ordinary antiphlogistic remedies. The second calls for the use of the warm bath. The third may require general or local bleeding, blisters, mustard plasters, mustard foot-baths, &c.; these remedies being employed according to the seat, and in proportion to the severity of the symptoms. The suggestion of M. Dupont relative to the extract of acornite is worthy of recollection. A sulphureous bath is recommended by Rayer, and in chronic cases sulphureous vapour might be found useful.

### 2. *Diminution of Secretion.*

498. Diminution of perspiratory secretion from arrest of function of the sudoriparous glands has hitherto been observed only in relation with ferile diseases. It is probable, however, that the perspiratory secretion, like that of other secreting glands, may be diminished and checked as a consequence of inflammatory disorder of the sudoriparous glands, independently of the rest of the organism. The dryness of skin which we occasionally meet with in some individuals bears no reference to the sudoriparous system, but is dependent on the absence of secretion of the sebaceous glands.

### 3. *Alteration of Secretion.*

499. Alteration in the physical properties, and, probably, also in the chemical composition of perspiration, is co-existent with augmentation of secretion, and may also occur independently of increase in quantity. The most apparent alteration in physical properties is that which relates to odour; the perspiration frequently assumes an acid smell, probably from containing a larger proportion than usual of lactic acid, or a rancid odour from excess of butyric acid, or a combination of both, constituting a fœtid and disagreeable odour, which has been aptly compared by Rayer to the smell of “rotten straw.” The same author remarks, “I had a woman under my care in the Hôpital de la Charité, affected with chronic peritonitis, and who, some time before her death, exhaled a very decided odour of musk: the pupil who called my attention to this circumstance had observed the smell for several days, while dressing the patient, who had been blistered, but thought it owing to a bag of musk put purposely into the bed, to overpower other bad smells. The woman, however,

assured us that she had no description of perfume about her, and I satisfied myself that her linen, which was frequently changed, was not impregnated with any perfume before being delivered to her from the laundry of the hospital. The odour of musk, the existence of which was fully ascertained by myself and several physicians, and which was very perceptible on the arms and other regions of the body, did not become more powerful from rubbing. After continuing for about eight days, the smell became fainter, and nearly vanished the evening before the patient's death. Speranza\* relates a similar case. Schmidt has inserted in the *Ephemerides Naturæ Curiosorum* an account of a journeyman saddler, three and twenty years of age, of rather robust constitution, whose hands exhaled a smell of sulphur so powerful and penetrating as very soon to infect any room in which he happened to be. I was once consulted by a valet-de-chambre, who could never keep a place in consequence of the unpleasant odour he left behind him in the rooms which he had been occupied in cleaning. There have been instances of individuals, who, to obtain their discharge or immunity from military service, have simulated these offensive perspirations, by rubbing their axillæ with the animal oil of dippel, assafœtida, a piece of much decayed cheese, putrid fish, &c. Finally, the colour of the cutaneous perspiration may also be modified by changes in its composition. Instances are recorded of green,† black,‡ blue,§ and yellow|| perspirations, &c.

*Treatment.*—The treatment of cases of alteration of secretion of the perspiratory fluid must be directed to the improvement of the general health.

\* Observation d'odeur aromatique exhalée par la peau de l'avant-bras. Archives Generales de Medecine. Vol. xxx. p. 399.

† Borellus, Hist. et Obs. Med. Phys. Cent. 2. Observatio, 54.—Paullini. Cent. 1 Observatio, 38.

‡ Bartholinus, Acta. Hafn. 1. Obs. 70.—Ephem. Nat. Cur. Dec. 1. Ann. 2. Obs. 19.

§ Conradi. Blue perspiration of one half the scrotum, Anat. p. 292.—Lemery, Hist. de l'Acad. des Sciences, 1701. Fontenelle, sur les sueurs bleues; Jour. de chimie Medicale, vol. i. p. 330.

|| Ephem. Nat. Cur. Dec. 1. Ann. 6 et 7. Obs. 78.



## CHAPTER XIV.

## DISEASES OF THE SEBACEOUS GLANDS.

500. THE sebaceous glands are subject to the same pathological laws that govern other secreting glands. The secretion may be increased, diminished, or altered, without manifest disease of the structure of the glands and their excretory ducts. Fourthly, the altered secretion may be accompanied by distention of the tubular structure of the glands, and of their related hair-follicles. Fifthly, the glands, with their immediately adjacent tissues, may be the subject of inflammation, the secretion being at the same time more or less altered. Under these five heads I shall proceed to consider the disorders of the sebaceous glands.

## I. AUGMENTATION OF SECRETION.

## STEARRHŒA.

Syn. *Sebaceous flux.*

501. Great diversity exists among individuals, in relation to the quantity of sebaceous secretion naturally poured out upon the surface of the skin. In certain instances, we have occasion to remark a great increase of this secretion, particularly during the progress of constitutional affections, in which the activity of the cutaneous circulation is excited. When this condition is present, the skin is bedewed with an oily fluid, which is especially abundant on the nose, face, and head, and upon all those parts of the body in which the glands are present in considerable number. The augmented secretion, after continuing a variable length of time, gradually diminishes without requiring medical treatment, and without giving rise to any unpleasant symptoms, farther than those which are necessarily associated with the unsightly appearance of a greasy skin. This affection may be often seen in persons otherwise enjoying excellent health, in whom an over-stimulating diet, or some slight disorder of digestion, can alone be assigned as a probable cause.

In more severe cases of the sebaceous flux, the skin is somewhat congested and thickened, the common apertures of the excretory ducts and hair follicles are enlarged, and the secretion poured out spreads in considerable quantity on the epidermis. This profuse form of the disease is

usually met with on the face, continues for a great length of time, and evinces no disposition to improve without medical treatment. Such cases are accompanied by pruritus, and often by severe shooting pains.

*Treatment.*—Attention to regimen, laxatives, alterative doses of mercury, the fulfilment of such peculiar indications as the state of health of the patient may offer, and moderately astringent lotions locally.

## II. DIMINUTION OF SECRETION.

502. The opposite condition to the preceding is occasionally observed, particularly in aged persons; I have also seen it in children and adults. The natural consequence of diminished function of the sebaceous glands is a disagreeable dryness and harshness of the skin, with their usual accompaniments, cracking, and desquamation of the epidermis. This state of the glands frequently originates in neglect of personal cleanliness, and may be prevented by frequent ablutions with soap, and brisk frictions subsequently with a rough towel. When the dryness is established, it may be relieved by the application of cold cream, or any simple unguent, containing ten drops of croton oil, or twenty drops of acetum cantharidis to the ounce.

It is often necessary, in these cases, to have recourse to farther treatment, in which case the warm bath, containing a small proportion of mustard, or the vapour bath, should be employed. After the skin is well dried from the moisture of the bath, the above unguents may be rubbed upon the surface, or the following compound, which, as it is intended to act as a substitute for the sebaceous secretion on the one hand, while it serves as an excitant to the functions of the glands on the other, may be advantageously employed:—

℞  
Elder-flower ointment, ℥j.  
White of egg, ℥j.  
Croton oil, ℥x.  
M.

To be used night and morning.

## III. ALTERATION OF SECRETION.

### ICHTHYOSIS SEBACEA.

Syn. *Sebaceous flux. Ichthyosis.*

503. In addition to simple increase in quantity, it occasionally happens that the secretion of the sebaceous glands is also altered in its quality; when this is the case, the secretion spreads upon the surface of the epidermis, and forms a thin layer, which dries and hardens, and breaks in the direction of the linear markings of the skin, into small polygonal portions, corresponding in form with the aræ of the compartments, bounded by these cutaneous lines. The small polygonal divisions are increased

in thickness by the accumulation of fresh sebaceous secretion, they became discoloured from exposure to dust and dirt, and they assume a brownish or grayish tint, approaching more or less to dirt colour. In the latter state, the small masses have the appearance of scales, (ichthyosis sebacea,) closely adherent to the epidermis, hard and dense in texture, and presenting various degrees of thickness. This affection may occur upon any part of the body, but is most frequent on the face, particularly on the forehead and the nose, upon the abdomen, and upon the flexures of joints; indeed, upon all those regions in which the greatest number of sebaceous glands exist, and which are most protected from the friction of dress. The scales are sometimes cast from time to time, particularly during the summer season, and give place to others formed by successive concretion; at other times they remain adherent for months, and even for years.

This affection of the sebaceous glands is generally unaccompanied by signs of local inflammation of the skin. There is, in many cases, no redness, and no heat, and when the scales are thrown off, the skin is natural both in colour and texture; in others, the skin is congested and thickened; it is studded with numerous apertures of sebaceous ducts, and frequently painful. By accumulation, the scales obstruct the mouths of the excretory ducts, and the latter become much distended. The disease is rarely accompanied by constitutional symptoms, but in a few cases when general, some degree of gastro-intestinal irritation may be present.

504. In an instance of this affection which fell under my observation about ten years since, I had the opportunity of examining the skin after the death of the patient from visceral disease. In this case, the scales were remarkable for their thickness; after being well washed, they were grayish in colour upon the surface, but white beneath, and evidently consisted of concreted sebaceous substance. On removing a portion of the epidermis by maceration, the ducts of the sebaceous glands and hair follicles were found distended with inspissated white secretion, and had a very beautiful and brilliant appearance, projecting like cones of pearl from the under surface of the membrane. The dermis presented a number of small deep pits, corresponding with these dilated ducts. The mouths of the distended excretory ducts opened upon the surface of the epidermis, some immediately beneath, and in the middle of the scales, and others by their borders. In the former situation, they could be seen as small white points through the scale, and still more evidently when the epidermis was separated by maceration.

From the careful examination of this case, of which a preparation is now before me, and of other cases which I have subsequently observed, I have been led to the conclusion, that the scales, in this disorder, increase in thickness in two ways, firstly, by additions to the free surface, by means of the secretion poured out in the linear furrows of the skin, and, consequently, between the scales; and secondly, by additions successively made to the attached surface by the effusion of inspissated secretion beneath them. In the preparation before me, the growth of the scales by both of these processes is distinctly evident.

505. A remarkable case of this disorder, disseminated in patches over

the surface of the head, neck, and trunk, is recorded by Dr. Jacobovics,\* under the erroneous appellation of “tubercules bigarrés,” a new variety of molluscum. Dr. Jacobovics’ case differs from ordinary instances of this disease, in the longer duration of the malady, its disseminated character, the excoriations which resulted from its continuance, and the presence of inflamed tubercles intermingled with the patches.

The patient, M. N., was a tailor of bilio-sanguine temperament, fifty-six years of age, the nineteenth child of healthy parents. His mother had a slight cutaneous affection on the neck; another had furfuraceous desquamations on the face; two sisters had several small tubercles on the neck and bend of the elbow; a sister’s child had a similar growth. At the age of thirty, M. N. was attacked with severe pneumonia, which left him in unsound health for some years. On reaching his thirty-seventh year, the cutaneous disorder first made its appearance; it commenced on the neck in the form of small yellowish spots, beneath which one or more white points, the apertures of sebaceous ducts, loaded with secretion, were perceptible. These yellow spots gave rise to pruritus during the summer season, which subsided in the winter. Three years afterwards, on the occasion of a severe mental affliction, the disease showed a disposition to increase, and quickly spread over his neck, breast, and back. The disorder now assumed the appearance of little crusts,† having a roundish or irregular figure, and various colour; for instance, some were yellowish-white, others fawn-coloured, and brownish, others again blackish and livid, and covered with slight desquamation, but there was no constitutional disturbance, nothing to induce the patient to apply for medical assistance until the year 1833, when, annoyed by the violent pruritus and unsightly appearance of the disease, he presented himself at Saint Louis. He was treated at this hospital for two months without benefit, and he returned to his business. Three months later his case was undertaken by Dr. Jacobovics, and presented the following characters:—

His hair was remarkable for its greasiness, as were several other parts of his body, particularly the skin of the front of the neck, which the author describes as feeling viscous and unusually soft. At the roots of the hair were numerous yellowish patches and scales of sebaceous substance; these greasy scales were also met with dispersed over many parts

\* Du Molluscum, recherches critiques, &c., suivies de la description détaillée, d’une nouvelle variété. Par M. M. Jacobovics. Paris, 1840.

† With no better reason, apparently, than that of adhering to the erroneous appellation which he had assigned to this disease, Dr. Jacobovics styles the crusts, *tubercles*, or *tumours*, throughout his essay. They were unquestionably extravascular formations, and mere depositions on the surface. In accordance with this view, I have, in every instance, altered the terms tubercle, or tumour, to *crust*. Besides, it does not accord with my notions of pathology to admit the possibility of a tubercle, or tumour, being converted by progressive development into a crust. But to agree with Dr. Jacobovics, such a doctrine must be embraced; for, after indicating a number of progressive stages of growth completed by the crust, he remarks, in conclusion,—“Les tubercules bleuâtres et noirâtres, les *croûtes* noires et verdâtres, et les taches qui leur succèdent sont des formes secondaires.” That is to say, that the black and greenish crusts are the secondary forms of “les tuberculos brunâtres.” Those who would peruse the statements of Dr. Jacobovics, I must refer to his essay presented to the “Académie Royale.”

of the skin. On the forehead, the alæ nasi, the cheeks, the back, and in several other situations, the apertures of the sebaceous ducts were very perceptible, and many of them were obstructed by inspissated secretion, which was dark-coloured in some, yellowish in others, and rose above the level of the surrounding skin in several. In other situations the sebaceous substance retained its softness and whiteness, and distending the excretory ducts, appeared like white points in the midst of the yellowish and discoloured laminæ\* by which its escape was prevented. The crusts commence by a whitish-yellow or brownish spot, of the diameter of a millet seed or lentil, but without prominence, and passed through a succession of stages which the reporter has accurately detailed. The yellow spot is attended with pruritus, and, examined with a lens, a minute white point may be discerned in the centre of each. In a more advanced stage the yellow spot has increased in diameter, and is raised in the centre, when it presents three or four white points in place of one. By degrees the yellow spots become transformed into brownish crusts, having a maximum elevation from the surface of two lines (French,) and a maximum diameter of six lines. These brownish crusts appear studded beneath the surface with white sebaceous points, which give the mottled (bizarré) character to the production, which awakened in the mind of Dr. Jacobovics the specific designation which he has assigned to the disease. The succeeding stages which the author has observed the sebaceous concretions to assume, are, bluish crusts, punctated with white, and having a lobulated appearance, produced by the linear markings of the skin, and blackish crusts, punctated only around the edges, and intersected by deeper furrows, corresponding with the dermic lines. These latter were chiefly met with in the dorsal region; after a time, the linear furrows increase in depth, even to the splitting of the crust into a number of small polygonal masses,† which adhere firmly to the epidermis, and assume a deep black colour. The desiccated patches, rubbed by the dress, or scratched with the nails, are liable to excite suppuration of the dermis, and the pus; oozing from between the fractured masses, forms upon the surface a succession of irregular crusts, which resemble those of impetigo. Other crusts of a yellowish-green colour are also met with, resulting from the immediate desiccation of the brownish punctated patches, and these also become broken in the direction of the natural furrows of the dermis.

Besides the sebaceous crusts above described, there were interspersed on this man's skin a number of small tumours and tubercles. Some of these were round or oval, prominent in the centre, of a bright red colour, smooth, and shining, covered by a thin and desquamating epidermis, and the seat of a troublesome pruritus. Others were of a bluish-gray colour, with

\* Dr. Jacobovics speaks of patches of a dirty yellow, or yellowish-white colour; these patches he seems to regard as discoloured epidermis, and he describes the white points as being beneath the epidermis. From the observation of cases of this kind, and particularly of the one above recorded (§ 504,) I feel convinced that the yellow patch is a thin layer of inspissated sebaceous substance, adhering very closely to the epidermis; this I conceive to be gradually raised by the deposit of fresh sebaceous matter beneath it, until the elevated crusts are formed, which are the distinguishing feature of this case. The white points will consequently be seen beneath the sebaceous scale. I have already alluded to this appearance, and have before me a preparation in which it is well shown.

† The masses are identical with the sebaceous ichthyosis described at the commencement of this section.

raised and livid borders. These were the principal causes of a violent itching, and indulgence in scratching gave rise to excoriation and chapping of the edges, with a discharge of sero-purulent fluid. A third variety were vividly red, indolent, and of small size, varying from that of the head of a pin to that of a small lentil. But these tumours bore no proportion to the sebaceous crusts. They were, probably, the consequence of irritation caused by the sebaceous concretions, and can only be regarded as a complication of the sebaceous disease.

As regards diagnosis, Dr. Jacobovics unfortunately allowed himself to be dazzled by a word, and that word the most unmeaning in the entire vocabulary of cutaneous disease, I mean, *molluscum*. Thus, after recapitulating the physical characters of the preceding case—e. g., hereditary tubercles, varying in size from that of a lentil to that of a pigeon's egg (there were none so large in his case.) round or irregular, usually sessile, brownish colour, consistent or softish, generally solid, no constitutional disturbance, &c.—he remarks, "Among the tuberculous diseases of the skin, none but the present genus is capable of assuming the whole of these characters, so I am bound to establish this in the genus *molluscum*." An unfortunate preference, for *molluscum* is already synonymous with heterogeneum. In the treatment of this case the author employed purgatives and warm baths, but with only partial success.

506. *Diagnosis*.—Cazenave and Schedel, who refer to M. Bielt's description of this affection, state that, when it has appeared upon the nose, it has been mistaken for *noli me tangere*. This error is little likely to be committed by those who examine the scales with attention.

With scaly ichthyosis I have seen it confounded, and, indeed, it presents so many of the characters of the latter disease, that I am disposed to believe many of the reputed cases of ichthyosis to be no other than the scaly affection resulting from morbid alteration, and increased quantity of the secretion of the sebaceous follicles here described. The two diseases may, however, be plainly distinguished by the evident epidermic structure, and greater density of the scales in ichthyosis, and by the comparative softness of the scales, and the unaltered condition of the epidermis in the present affection. From spiny ichthyosis the diagnosis is too evident to permit the possibility of mistake. Another important mark of distinction between ichthyosis and the sebaceous disease is the difficulty of effecting the fall of the scales in the former, while in the latter almost a single application suffices for their removal.

507. *Causes*.—This affection occurs at all ages, especially in persons of a lymphatic temperament, in whom the skin is thin and delicate. It is sometimes accompanied by an unctuous state of the integument, but more frequently by a dry and parched condition of the epidermis, and shrivelled appearance of the skin. Occasionally it has been seen after parturition. The most frequent cause I believe to be the absence of a proper excitation of the skin by ablution and friction.

508. *Treatment*.—The first indication presented to the mind, in considering the nature of this disease with reference to treatment, is to remove the scaly concretion; and the second, to excite the sebaceous glands to healthy action. The former object is to be effected by means of the warm bath, or warm fomentation, rendered moderately alkaline by subcarbonate of soda or potash, several times repeated. The second may be attained by frequent ablutions with warm or cold water, succeeded by brisk fric-

tions with a rough towel; sea bathing; and astringent lotions. A useful application to the surface, in this affection, will be found in the following ointment:—

℞  
Elder flower ointment, ℥j.  
Sulphate of copper or zinc, ℥j.  
M. To be used twice or thrice in the day.

The *lapus divinus*, in the form of lotion or ointment, is also a useful remedy. During the progress of the local treatment, it will be desirable to administer some laxative medicine, and to regulate the diet of the patient. I obtained much benefit from the exhibition of the milk of sulphur, in one case of this disease.

#### IV. RETENTION OF SECRETION.

509. The present group of diseases of the sebaceous glands is characterized by distention of their ducts, and related hair-follicle, with more or less alteration in the quality of the secretion, the alteration tending chiefly to inspissation. This group admits of division into two sub-groups, or families, in one of which the excretory hair-follicle still remains open, the secretion is inspissated, and in communication with the exterior. In the second family, the excretory hair-follicle is closed at its aperture, and the escape of the secretion prevented.

(A.) *Retention of secretion in the sebaceous ducts, the excretory aperture remaining open.*

##### COMEDONES.

Syn. *Grubs. Worms. Mitesser. Germ.*

510. The simplest form of this disease is that which is popularly known under the name of *worms*, or *grubs*. In this affection, the sebaceous secretion is inspissated, and produces complete distention of the related hair-follicle. Reaching the mouth of the latter, the secretion hardens, and becomes deeper in colour, and at the same time, from being exposed to the dust and dirt of the atmosphere, the extremity is rendered dingy and dark-coloured. This discolouration of the sebaceous substance at its extremity gives rise to the appearance of a round black spot, with which, in some persons, the skin of the face, particularly of the nose, is more or less thickly studded. If a fold of skin, including one of these spots, be pressed between the fingers, the concreted secretion is squeezed out, under the form of a little white cylinder, about a line in length, and blackened at its extremity. It is the lengthened form of this little cylinder, with its dark extremity, that has gained for it its popular designation.

Instead of being soft, and easily pressed out from the hair-follicle, it sometimes happens, where the secretion has remained undisturbed for some time, that the little cylinder has become desiccated, and resembles horn, both in appearance and density. In this case, the concretion requires to be dislodged by a pointed instrument, or withdrawn, by means of a pair of ciliary forceps. In a remarkable instance of this kind now before me,

there are several patches of skin, of about the size of a crown piece, on different parts of the body, closely studded with these horny comedones, every hair-follicle in the affected area being occupied by its little spine, slightly projecting beyond the plane of the surrounding skin.

The disorder of the sebaceous glands here described is very commonly met with on the face of persons in whom the cutaneous circulation is less active than natural, and particularly among the inhabitants of cities and large towns, in whom the brain and nervous system claim an undue proportion of the vital energies; and in whom congestions of the viscera are not unfrequent. It is generally associated with the presence of other diseases of the sebaceous glands, and is always met with in combination with acne. Indeed, one form of acne, *acne punctata*, is simply an inflammation of the sebaceous gland and related hair-follicle, excited by the overload of inspissated secretion.

511. When the substance expressed from one of these comedones is examined with the microscope, it is found that the sebaceous mass of which it is composed is altered in its composition. For, instead of the minute corpuscles of an oblong figure, intermingled with myriads of oil-globules which compose the normal secretion, the inspissated substance consists of cells of much larger size than the corpuscles, containing in their interior a granular substance, and a variable number of oil-globules. Besides these cells, several minute hairs are seen in the centre of the mass; they are usually twisted, or bent, and sometimes to such an extent, that the tapering point is approximated to the basal extremity. I have occasionally observed the epidermic follicle surrounding one of the hairs, and more frequently when there exists but one in the sebaceous mass. In this case, the bulb of the hair is perfect; its fibrous brush-like root, and the granular mass of the pulp, are distinctly apparent. More frequently, however, the hairs are broken at their larger ends, and the fibrous structure of the hair is very evident. The number of hairs seen in the mass of a comedo appears to have relation to the period of impaction of the sebaceous substance; for when the matter is soft, and of recent collection, I have found only one hair, or at most two, one of the two being surrounded by its epidermic follicle; but when the mass has been impacted for some time, I have counted upwards of twenty. Dr. Gustav Simon remarks that he has seen as many as forty in some comedones.\*

This observation is an interesting illustration of the physiology of the invisible downy hairs of the body, and serves to prove that which, *à priori*, we should be led to infer, and indeed that which their presence in the ceruminous substance of the meatus auditorius in such numbers as are there found, also testifies—namely, that they are continually thrown off, after attaining a certain length, and continually reproduced. In the instance before us, the pathology of the comedones, the sebaceous secretion is poured as usual into the hair-follicle, but instead of being excreted from thence, and diffused upon the skin, it collects, probably as a consequence of its altered nature, and obstructs the follicle. The little hair, when thrown off by the usual process, is no longer conveyed away from the follicle with the sebaceous secretion, but is surrounded by the latter in its altered state, and remains enveloped in its substance. By a continuance of this process, a number of hairs may thus be amassed.

\* Müller's Archiv., No. 2, 1842.



Dr. Gustav Simon, of Berlin, has recently discovered, in the sebaceous substance of comedones, and in that which is squeezed out from the cones of acne punctata, certain microscopic animalcules, supposed, by the entomologists of Berlin, to be related to the genus *acarus*; hence, Dr. Simon terms the animalcule, *acarus folliculorum*. A description of this animalcule will be found in Chapter XVII., at the conclusion of the volume.

512. *Treatment*.—The treatment of comedones requires the employment of such means as are calculated to stimulate the skin gently, and excite it to the due performance of its proper functions. The parts affected should be impregnated with soap, and thoroughly washed; they should then be rubbed briskly with a rough towel, until the skin be felt to glow; and this should be repeated twice in the day. The immediate effects of this treatment may possibly be a red and patchy state of the skin, but this will speedily pass away. It would be well in these cases to extend the ablution and frictions to the entire body, for the appearance of the disease in one part is indicative of a generally torpid action of the skin. Cold bathing and sea-bathing are also calculated to be beneficial. In some instances it may be necessary to employ some medicinal stimulant, in which case the following lotion will be found useful:—

℞  
 Bichloride of mercury, gr. ij.  
 Eau de Cologne, ℥ij.  
 Distilled water, ℥vj.

M.

or the same quantity of bichloride of mercury may be added to half a pint of the emulsion of bitter almonds.

#### SEBACEOUS ACCUMULATIONS.

513. In a second group of diseases of the sebaceous glands, characterized by altered secretion and distention of the excretory duct and related hair-follicle, the latter remaining open, the follicle is dilated to an enormous extent, and pressing on the structure of the gland, finally causes its atrophy and absorption. These sebaceous accumulations attain considerable magnitude; they are generally oval in form, and I have seen them measure upwards of an inch in diameter. Their precise seat is the tissue of the dermis, and they are more or less flattened by compression between the deep layer of the corium within and the dress and pressure without. The follicular sac is filled with a white and concreted substance, which is more or less apparent through the aperture of the duct, in proportion to its size. This aperture is generally more dilated than natural, but bears no proportion to the size of the sac. In a preparation before me, the aperture is one line in diameter, while the breadth of the sac amounts to three-quarters of an inch. These collections of sebaceous substance produce very little tumour of the skin, and would scarcely attract notice, but for their aperture, which resembles a dark-coloured circular spot. The walls of the sac are exceedingly thin, they are lined in their interior with epidermis, and are sometimes beset with hairs.

514. In a variety of this disorder, modified by neglect, the sebaceous substance increases to so great an extent as to produce a prominence of the containing integument. By continued accumulation, the excretory

opening is gradually dilated, and the concreted sebaceous substance, hardened by exposure, protrudes from the sac, and forms a kind of horn. These sebaceous horns (§ 448) are usually met with on the scalp, but they may occur on other parts of the cutaneous surface.

515. Upon examining the contents of one of these sebaceous sacs, I was much struck by finding the contained substance laminated in structure, and presenting a silvery hue. The lamination of the substance afforded me a convincing proof that the mass was a product of the lining membrane of the sac; and its silvery brilliancy farther led me to believe that it must be composed of epidermic scales. The microscope established this conclusion; the scales were epidermic, identical with those of the external epidermis, with the simple exception of a better defined outline, and a more distinct nucleus. It was this observation which induced me to pen the preceding description, in which I have recorded my opinion that the disease, beginning by an alteration and collection of sebaceous substance, produces so much dilatation of the excretory hair-follicle by its increase, as to press upon, and finally to destroy, the structure of the sebaceous gland. The lining membrane of the follicle, or sac, however, continues the morbid action in the production of an inordinate quantity of epidermic scales, which eventually constitute the abnormal mass, so that this disease, as frequently happens in the case of the sebaceous glands, originally a disorder of the gland and of its secretion, subsequently becomes one of the hair-follicle.

516. *Treatment.*—The concreted substance may be removed without much difficulty, by means of a small scoop introduced through the aperture. If, however, the aperture be too small for this purpose, it should be dilated or enlarged by means of a trifling incision. After the removal of the concreted mass, the sac should be injected with a solution of alum, or nitrate of silver, until it returns to its natural size, or is obliterated.

#### SMALL SEBACEOUS TUMOURS.

Syn. *Molluscum contagiosum.*

517. In a third group, the secretion is not confined to the excretory duct and hair-follicle, but distends also the primary ramifications of the former, so as to give rise to a small tumour, about equal in size, in its fully developed state, to a ripe currant. This resemblance is not confined solely to size, for the sebaceous substance, rising to the aperture of the follicle in the centre of the tumour, appears like the depression on the summit of the currant to which the corolla is attached, while the sebaceous ducts swell out in the circumference of the tumour, and give to it a slightly lobulated appearance. When a transverse section of this little tumour is made, it is found in reality to be divided into five or six segments, each of the segments containing a dilated branch of the excretory duct. The swelling of these segments, moreover, gives rise to a depression on the summit of the tumour, corresponding with the aperture of the duct, from which a portion of the concreted sebaceous substance can always be removed by means of a pointed instrument, and it also produces a constriction around the base of the tumour.

When these little tumours are left to themselves, they terminate, ac-

ording to my observation, in one or two ways, either by ulceration of the summit, and discharge of the sebaceous substance and gland *en masse*, (for the latter is but loosely connected with the integument,) or by inflammation and sloughing of the entire tumour. In the former case, the collapsed integument, when the base of the tumour has become much constricted, forms a small, pendulous, pyriform appandage, (*verruca acrochordon*, § 445,) which remains for the rest of life. In the latter, the ulceration sometimes extends deeply into the skin, and leaves behind permanent and unsightly cicatrices.

518. An instance of this disease lately (March, 1842) presented itself to my notice, which was remarkable for the active development of the tumours. They were first perceived, about fifteen or twenty in number, dispersed upon the skin of the neck, face, and shoulders of a little girl, four years of age. By the advice of the family medical attendant she was sent into the country, and in the course of a few weeks became quite well, all the tumours having disappeared, and no new ones being formed. Soon after her return to town, the mother brought her two other children—an infant and a girl of six years old—to me. The mother and children were of blonde complexion, they had light hair, and a thin delicate skin; the mother was much alarmed at the development of these little tumours on her two other children as well as on herself, “caught,” as she imagined, from the child first affected. I quieted her alarms relative to contagion, but was much struck by the fact of the almost simultaneous appearance of the disease upon four members of the same family. On the neck of the mother I found four or five of these little tumours closely resembling and of the size of currants, constricted at their base, and each presenting an umbilicated depression of impacted sebaceous substance, the aperture of the excretory follicle; and she directed my attention to three ugly scars upon the face left by similar tumours recently healed. On the neck, face, and shoulder of the eldest child I found eight or ten little tumours, presenting all their stages of growth. One upon the shoulder was so completely pedunculated, that I was tempted to place a ligature around it, and in a few days it fell off. On the infant they were less advanced, they were just rising from the integument, and each possessed in its centre the dark point of an excretory sebaceous follicle. The little tumours presented no signs of inflammation, they were of the natural hue, or somewhat lighter than the surrounding skin, from the whiteness of the secretion which they contained in their interior, and there was no areolar redness around their base.

Since the above account was written, I have again (August, 1842) been visited by this patient, on account of the development of a small angry tumour of a similar kind upon the margin of the upper eyelid of her little girl, involving two or three of the Meibomian glands. With this exception the children have remained free from any return of the tumours. Upon inquiry as to the manner in which they disappeared, the mother tells me, that they became black, and shortly after were rubbed off accidentally. One of large size, and situated behind the ear, in the child first affected, was snipped off by Mr. Tyrrell. The mother, who is out of health, has three still remaining, one of small size near to the angle of the right eye, and two upon the back of the hand. The former has supplied me with a fresh stock of matter for examination.

519. Upon examining these little tumours, I found them to present all

the characters of a small conglomerate gland,\* consisting of several lobules held together by areolar tissue, and the lobules composed of ramified ducts and terminal sacculi. The ducts were remarkably dilated, particularly the central one, and were filled with inspissated secretion. The latter was identical in composition with the concreted sebaceous substance of the comedones. § 511. The cells were of the same size, had the same appearance, and were intermingled in considerable number with epidermic scales. I differ in opinion with Dr. Paterson in not considering these cells as peculiar organisms, capable of nucleolar propagation when transferred to an appropriate nidus in another individual. I regard them as the normal sebaceous cell, which, as I have before remarked (§ 511,) contains a granular substance, filling it more or less completely. In its early stage of formation, the cell, like all epithelial cells, is an adherent envelop of a nucleolated nucleus; subsequently the cell increases in bulk by endosmosis, and assumes the oval and more or less flattened form, in proportion to the larger or smaller quantity of fluid present in the ducts. The granular contents of the cells are due to the breaking up of the nucleus, and in proportion to the bulk of the cell and the quantity of its fluid, they either fill the cell completely, or leave an unoccupied interval around their circumference. In the myriads of cells of a small fragment of the concreted substance of one of these little tumours, I perceived cells of both the above kinds; but the number of the latter, few on the first examination, had very much increased on the following day, after I had left the tumour in weak spirit for twenty-four hours.

The difference in the appearance of the cells examined by Dr. Paterson, and by myself appears to me to be immediately explained by reference to the physical difference in the contents of the tumours. In Dr. Paterson's case, the contents, as in Bateman's, were milky, and consequently, semi-fluid. Here then, were the conditions favourable to the production of cells, having a considerable interval filled with fluid between the granulous nucleolar substance and the membrane of the cell—a disposition which induced Dr. Paterson to regard them as being composed of an external vesicle and an internal vesicle, the latter containing the granular substance. In my cases, on the other hand, the contained substance was concreted, there was a deficiency of fluid, and the granulous substance filled the cell, and in exceptional cases only were any perceived in which a peripheral interval was observed. But on the second day, as I have before remarked, when the mass had been steeped in weak spirit for a number of hours, the peripheral interval was evident in a considerable number.

On examining my new stock of sebaceous matter, (August, 1842,) fresh from the patient, I found it to consist of cells heaped together like a pile of eggs, and intermingled with a large quantity of epidermic scales in flakes. The mass consisted solely of these two substances, without any granular matter or oil-globules. The cells were variable in their form, some being more or less cuboid, others irregular from compression, some oblong, like the eggs of the ant, others, again, oval, but the most common form was ovoid, like that delineated in the figures of Dr. Henderson and Dr. Paterson. The cells presented equal diversity in size, varying in their long diameter from  $\frac{1}{909}$  to  $\frac{1}{667}$  of an English inch, and

\* This observation confirms the description given by Dr. Henderson, § 531.

in their short diameter from  $\frac{1}{1430}$  to  $\frac{1}{1111}$ : some of the cuboid cells measured  $\frac{1}{1000}$ ; the general size of the oval form was  $\frac{1}{60}$  long, and  $\frac{1}{1000}$  broad; there were several oblong cells, measuring  $\frac{1}{555}$  by  $\frac{1}{1425}$ ; and the common dimensions of the ovoid cell were  $\frac{1}{720}$  by  $\frac{1}{1000}$ . This size corresponds very closely with the cells of ordinary inspissated sebaceous substance, whether it be concreted or pulpy; and also with the dimensions of the epidermic scales lying scattered among the cells. The contents of the cells were also various, some were filled with granular substance, in the midst of which, at some one point, the nucleus was perceptible; others contained a homogeneous substance, separated into polygonal masses, mostly of a cuboid shape; while others, again, were more or less filled with minute oil-globules. It is difficult to say which kind of cells were most numerous. I saw nothing like the double vesicle described by Dr. Paterson, and I think it possible that the appearance which he has delineated may have been produced either in the manner I have already suggested, or by the superposition of a single cell by several connected scales of epidermis; or again, by the accidental position of the cell upon the epidermic scales in such a manner as to constitute a thin margin around it.

520. *Treatment.*—In the case above detailed, I prescribed laxative medicine, and touched the tumours with nitrate of silver several times. By this treatment, I succeeded very speedily in removing them. I have mentioned that a ligature was placed around one; a more expeditious mode of getting rid of them would be to snip them off with scissors. In adults, they may always be snipped off. On the mother of these children, I opened several with a lancet, and touched their interior with nitrate of silver. Their return may be prevented by the plan of stimulation of the skin, recommended for the treatment of comedones. Dr. Thomson used sulphate of copper, and Dr. Paterson potassa fusa, in their treatment.

In the mode of cure of these tumours, I perceive another argument against their contagious nature. They disappeared in the first child, on the recovery of her health, during a short visit to the country, without local treatment. In the case of the other two children, many of the little tumours fell off, and the disease got well under the use of the compound senna powder. The three at present upon the skin of the mother are attributable to a disordered state of health. Indeed, I have no hesitation in asserting that this family is the subject of a *sebaceous constitution*, and that any recurrence of disordered health will bring with it a disposition to the formation of sebaceous tumours.

521. After having determined the nature of the small tumours above described, and having assigned to them the position which they appeared entitled to occupy in a natural system of classification of diseases of the skin, I read, for the first time, with attention, the cases narrated by Bateman, under the head of Molluscum, and was struck with the identity of Bateman's cases with those I had just witnessed. Pursuing my inquiry with a view to ascertain the true meaning of the term, and that which seemed to be intended in its original application, I came to the conclusion expressed by Dr. Jacobovics,\* that Bateman must have borrowed the appellation from the essay of Dr. Ludwig,† the reporter of the cele-

\* Du Molluscum recherches critiques, &c. Paris, 1840.

† Historia pathologica singularis cutis turpitudinis J. G. Reinhardi viri 50 annorum, &c. By Dr. C. F. Ludwig. Lipsiæ, 1739.

brated case which occurred to Tilesius. The author, in his preface, remarks—"Reinhardi, visu fœdum, corpus tectum est verrucis *mollibus* sivi *molluscis*." Alibert, Biett, Cazenave, and Schedel, on the contrary, attribute the origin of the term to some resemblance existing between the cutaneous tumours and the knots on the bark of the maple.

The earliest case on record of this affection, and the one in fact which, according to the above supposition, gave the designation to the disease, is that of Tilesius, recorded by Ludwig. I propose to make an analysis of this case, as well as of those which have been published on the same subject to the present time, in order to ascertain the opinions entertained by their respective authors of the cases which have appeared in their names. The result of this inquiry will, I trust, be a confirmation of my opinion respecting the pathology and true position of molluscum.

522. *Case observed by Tilesius.*—John Godfrey Reinhardt was born at Muhlberg, of healthy parents, in 1742. At birth, his body was covered with excrescences of small size. When seen by Tilesius in his fiftieth year, these excrescences varied in size from that of a pea to a pigeon's egg. Their form was various, some being like warts, others oval, others irregular, and others flattened either by the clothes of the patient, or by pressure against an adjoining part. The most remarkable of these excrescences was one which was developed from the integument over the ensiform cartilage; it was wallet-shaped, tuberculated on the surface, flaccid, and hung as low as the umbilicus. Its tuberculated appearance indicates its constitution of several smaller excrescences. The prevailing colour of the tumours is red; here and there one may be seen of a dull yellow or reddish brown hue; they are spongy and soft in texture, and the skin which supports them is dirty-looking and earthy. "*In medio quarundam maxi marum excrescentiarum parvum foramen conspicitur, ex quo nigra corpora oblonga, quæ altius in cute albicantem atque tenerum processum habent exprimi possunt, quæ vulgo, comedones, appellantur.*"

The excrescences are most numerous by the side of the vertebral column, on the thorax, the neck, and the sides of the abdomen. On the head, one has the appearance of an encysted tumour. Regularly every month, some of the tumours become congested, and itch greatly, forcing the patient to scratch them violently. He is the subject of habitual feverishness, which is increased at each fresh attack of congestion of the tumours, and is accompanied by loss of appetite.

Reinhardt is short in stature, has a large head, knees somewhat incurvated, protuberant abdomen, and dull expression of countenance. His position in life is one of indigence and misery. He has invariably refused to permit the removal or puncture of one of the tumours, so that their internal structure is entirely unknown.

Such is the case observed by Tilesius. The question now comes to be—What is the nature of the disease? Let us review the evidence. An unhealthy child, born with disordered sebaceous glands, the ducts of the glands loaded with inspissated secretion, and forming small prominences on the surface of the skin. The child bred in "indigence and misery;" the skin "dirt-coloured, and earthy in appearance;" the child and man unsound in body, sluggish in functions. Here, then, are precisely the conditions which we should desire to bring together, for the purpose of inducing the disease artificially. For the most conclusive of

all evidence, mark the Latin passage quoted from the original; the excretory aperture in the centre of the largest tumours, the altered sebaceous substance squeezed out, nay, more—its comparison with “comedones.” One of the tumours situated in the scalp we find to have taken on the usual characters of a sebaceous encysted tumour. The sebaceous tumours in this case are remarkable for being the largest on record. But why? Because they were reared in excellent soil, and because they possessed a growth of half a century. One assumes the form of a wallet, but this we find is the aggregation of several, growing from a limited spot of skin, and one richly supplied with sebaceous glands. The wallet is also favoured in its growth by the constant irritation produced by the pressure of the shoemaker’s last. The constitutional symptoms form no part of the disease, only so far that such an abundance of unhealthy glands would necessarily excite general disturbance, and, aided by “indigence and misery,” and by endemic conditions, would conduce to the development of intermittent fever, under which the patient suffered several times.

One other observation is elicited by this case—namely, that no suspicion of contagion appears to have occurred to the minds of any of the persons engaged in the narrative. The father and mother of the patient never suffered from a cutaneous complaint; his two brothers were free; his two wives were equally exempt, together with an infant child. But this is the typical case of molluscum, with which all future observations must be compared: this is the case which has supplied dermatologists with their definition of the disease—which enabled Bateman to announce that molluscum “is characterized by the appearance of numerous tubercles, of slow growth and little sensibility, and of various sizes, from that of a vetch to that of a pigeon’s egg. These contain an atheromatous matter, and are of various forms; some being sessile, globular, or flattish, and some attached by a neck, and pendulous.”

None of the tumours were punctured in Reinhardt’s case, but that omission is of little moment, when we again advert to the Latin quotation. The tumours from which no sebaceous substance escaped, upon which no aperture was apparent, were undoubted instances in which the excretory aperture had closed, as in encysted tumours.

523. *Cases observed by Bateman.*—This author reports six cases of sebaceous tumours, which he considers, in reference to the case of Tilesius, “a singular species of molluscum.” In my opinion, the only difference between Bateman’s cases and that of Tilesius is one of duration; and the same observation applies to all the cases recorded since his time. The sebaceous tumours of Reinhardt were of fifty years’ growth. The assumption of the contagion of these cases appears to me as unfounded as in the four cases I have myself related. It will be remarked, that of Bateman’s seven cases, three were children of the same family, two were children apparently of another family, and two were servants in the first family; one an undoubted case, the other supposititious. But to proceed:—

“The face and neck of this young woman,” writes Bateman, “were thickly studded with round, prominent tubercles, of various sizes, from that of a large pin’s head to that of a small bean, which were hard, smooth, and shining on their surface, with a slight degree of transparency, and nearly of the colour of the skin. The tubercles were all

sessile, upon a contracted base, without any peduncle. From the larger ones a small quantity of milk-like fluid issued, on pressure, from a minute aperture, such as might be made by a needle's point, and which only became visible on the exit of the fluid. The progress of their growth was very slow; for the first tubercle had appeared on the chin a twelvemonth ago, and only a few of them had attained a large size." "She ascribed the origin of this disease to contact with the face of a child, whom she nursed, on which a large tubercle of the same sort existed, and on a subsequent visit she informed me, that two other children of the same family were disfigured by similar tubercles; and, besides, that the parents believed that the first child had received the eruption from a servant, on whose face it was observed. Since my attention was drawn to this species of tubercle, I have seen it in another instance—in an infant brought to me with porrigo larvalis; and, on investigation, it was found that she had apparently received it from an older child, who was in the habit of nursing it. In this case the milky fluid issued from the tubercles, and may be presumed to be the medium of contagion."

524. *Cases observed by Dr. John Thomson and Dr. Carswell.\**—The first case occurred in the Canongate, in April, 1821, in three children of the same family. The eldest boy was supposed to have brought the disease from school, and to have transmitted it to his brother and sister. "The contagious nature of the disease is well evinced in the child. On the back of its hands a considerable number of tubercles are seen, which have been produced by applying them to the face, and scratching those situated there during their inflammatory stage. Some of the tubercles are small, others large; some in a state of active inflammation, others nearly of the same colour as the skin, and quite free from pain. A few of them are pedunculated, but the greater number are attached by broad bases." "The mother, though in the constant habit of nursing the youngest child, has not been infected."

A second series of cases came more recently under Dr. Thomson's attention. A farmer's child was affected with the characteristic little tumours: he had taken the contagion from the child of a farm servant. Some of the tumours were situated on the eyelids, and gave rise to conjunctivitis. While suffering from this disease, the child rested his face against the neck of a servant girl as she tended him, and she too became the subject of sebaceous tumours.

These cases are narrated in the true spirit of contagion, and with an unconditional assent to the opinions of Bateman. I regret that less attention was bestowed in ascertaining the state of the skin and sebaceous system of the patients, their health, and especially their habits of cleanliness.

525. *Case observed by Alibert.*—Alibert treats of the molluscum of Bateman, under the name of mycosis fungoides, and he associates the disease with the Amboyna and Mollucca pox, with which it bears considerable analogy. His definition is brief, but vague; he observes: "The disease appears upon one or several parts of the body, in the form of fungoid (fongueuses?) and oval-shaped tumours, which arise and are developed successively upon the face, the upper and the lower extremities. These tumours, which are very analogous in texture with champignons after having reached their full growth, open like decomposing fruits, and give

\* Edinburgh Medical and Surgical Journal, vol. lvi., p. 280. Dr. Paterson's paper.



exit to an ichorous fluid, which is often puriform, and sheds around it a disgusting odour."

The case from which he derives his definition I will shortly narrate. The mother of the patient had upon the face an ulcer that was cured by the application of a caustic; his brother died of a cutaneous disease, which resisted all medical treatment. The man, named Lucas, was fifty-six years of age; his disease was ushered in by a furfuraceous eruption, which was soon after succeeded by the development of small tubercles, smooth and polished on their exterior, and presenting, for the most part, the ordinary hue of the skin, some few having a brownish tint. They were distributed over nearly all parts of the body. They resembled morelles or agarics in form; some were shaped like an olive; and they increased in number to such an extent that fourteen were removed from the face. Their base was large; they were spongy in texture, and they exuded a reddish fluid, which imparted a greenish or yellowish stain to his linen. This fluid concreted on the tumours into the form of a brownish or grayish crust. The majority of the tumours terminated by bursting, and then falling into a flaccid state, leaving in their place a withered skin, which the daughter of the patient removed with scissors, without exciting pain. After experiencing considerable mental affliction, he had an attack of pemphigus. The tubercular disease increased rapidly after this period; the tubercles, on breaking up, gave rise to ulcers, the patient suffered from lancinating pains in these ulcers; he became emaciated and hectic, and died, after keeping his bed for seven months, and being the subject of this disease for five years.

This case is not satisfactory: the seat of the disease in the sebaceous glands is not proved; indeed Alibert suggests no opinion with regard to the pathology of the tumours, but contents himself with classifying them with the molluscum of Bateman. Examination after death was unfortunately refused: had that been made, I have no doubt that serious visceral disease would have been discovered. I think it very unlikely that the man died of the cutaneous disease.

526. Rayer, who had never seen a case of this disease, remarks with regard to it, that its "seat appears to be the sebaceous follicles."

527. *Cases observed by Biett.*—Biett, in the "Dictionnaire de Médecine," referring to the case of Tilesius, remarks, that he had seen two analogous cases, but that in these the tumours were hard and consistent, and they contained neither atheromatous matter,\* nor liquid. He also cites the instance of an old man, whose skin was covered with these little tumours, without any disturbance of his health. Biett met with another form, "noncontagious molluscum," in young women after parturition. In these cases the little tumours were flattened, slightly fissured (*fendillées*) at their summit, irregular in form, and brownish or fawn-coloured in tint. They were indolent, and more particularly distributed about the neck.

Such is the evidence of the distinguished Biett, but with all deference to his judgment, I see in these cases no reason for altering my opinion with regard to the pathology of the tumours. Nor can I perceive any difference

\* By the term "atheromatous matter" is to be understood sebaceous substance altered to the appearance and consistence of pap. The word "liquid" no doubt relates to the "milky fluid" of Bateman. There was no such fluid in my case: the sebaceous substance was concreted and dense; not soft, as in the case of Tilesius, nor fluid, as in those of Bateman. Biett's appear to have been similar to mine.

between the two forms of noncontagious molluscum, which he seems desirous of establishing.

528. *Cases observed by Cazenave and Schedel.*—These authors relate that they saw, in the Hospital Saint Louis, a patient affected with prurigo, on whose body were a number of little indolent tumours. The largest were scarcely so large as a hazelnut, others were no larger than a small pea. They appeared formed of a dense fibrous substance, and pressure produced no pain. After describing “molluscum non contagiosum,” they continue—“molluscum contagiosum is a very rare disease, and does not appear as yet (1828) to have been observed in France. It is characterized by tubercles, rounded, prominent, hard, different in size, smooth, transparent, sessile, giving exit by their summit to a white fluid,” &c.

529. *Cases observed by Gibert.*—This author does not conceive it necessary, in his treatise, to describe molluscum, of which he remarks that he has seen but two or three undoubted cases in the course of fifteen years. One of these occurred in the service of M. Biett, in a child ten years of age, afflicted with chronic enlargement of the liver and spleen, the consequence of a fall on the abdomen. The entire skin was sprinkled over with small whitish tumours, of about the size of peas. They were hard, indolent, and not unlike those little cretaceous tumours we occasionally meet with in the substance of the liver. M. Biett considered that the disease should be referred to the genus molluscum of Bateman, a rare affection in our climate, but not unfrequent in India.

530. *Cases observed by Dr. Jacobovics.*—In the spring of 1839, this author saw, at Saint Louis, two women, the one sixty, the other seventy years of age, who were covered with fungiform tubercles. To describe these tubercles, would be to repeat the observation of Tilesius. The face, the neck, the head, and the members, were closely set with the morbid excrescences; at the base of the right hypochondrium of one patient, and on the neck of the other, one of these tumours was as large as the fist, and shaped like a wallet. The tubercles were red in colour, and the greater part poured out a small quantity of ill-smelling sero-purulent fluid, which every here and there concreted into thin crusts. No other member of the families of these two women had suffered from a similar disease, and on one the eruption had existed for two years. These cases were not farther observed.

In his essay on molluscum, Dr. Jacobovics attempts the classification of all the known diseases possessing the general characters of those of Tilesius and Bateman, as three varieties of the genus molluscum. In this attempt he has signally failed; he has succeeded only in bringing together the most heterogeneous materials, under an unmeaning title—a title that would far better be abolished altogether from cutaneous pathology. His three proposed varieties are, *tubercula fungosa*, *tubercula atheromatosa*, and *tubercula variegata*. Under the first of these, which, to illustrate his meaning, should have been *fungiformia*, he has assembled the Amboyna pox, the cases of Tilesius and Alibert, the cancer mollusciforme! of Rayer; the cases of Biett, Cazenave, and Schedel, and Gibert, and the molluscum pendulum of Willan. Under the second variety, he groups those cases which have been assumed to be contagious—namely, those of Bateman and Thomson; and he reserves the third designation for his new variety, the “tubercules bigarrés,” which I have

already transferred to a more appropriate place—namely, the section treating of “inspissated sebaceous secretion, or sebaceous ichthyosis.”

531. *Cases observed by Dr. Henderson.\**—Dr. Henderson has seen five cases of this disease identical in their characters with those which fell under my notice, and closely corresponding with those of Dr. Bateman. They all occurred in the children of poor persons; and the finest case was that of an orphan boy, eight years of age, an inmate of a work-house. Relative to contagion, Dr. Henderson speaks with caution. Three of the children were members of the same family; one was a neighbour's child; the remaining one, the orphan child, an isolated case. The children who exhibited the molluscum in the most marked degree were very unhealthy, having a tumid abdomen and tubercular deposits. The two youngest, twins, died of acute hydrocephalus, the orphan boy of peritonitis and other serious disease. One of the twins had only two tubercles, the other twelve on the face and one on the ankle; the two other children had only one each, but in the orphan boy there were considerable numbers. They were principally situated on the lower part of the abdomen, the organs of generation, and the inner sides of the thighs; in these regions there were three or four dozen. On the right arm there were four, and on the left, ten. They varied in size, from a millet-seed to a pea; they were, for the most part, rounded in form, constricted around the base, and had each a small dark-coloured central point, from which might be squeezed a little milky fluid. On the back was an elliptical swelling of large size, measuring one inch and a-half in its long diameter, and one inch and a-quarter across. In the centre of this swelling was a small elevation, a kind of crater, and at the apex of the latter an excretory opening, through which might be squeezed a quantity of soft white substance, resembling finely-ground rice, boiled.

Examining the structure of these little tumours, Dr. Henderson found them to consist of vertical cells opening towards the centre, and discharging their contents into a common cavity, which communicated with the exterior by the excretory opening. The large tumour was lobulated in structure, and upon its under surface had the “general appearance of a conglomerate gland;” it illustrated on a “larger scale the conformation of the smaller ones.” The contained matter of these tumours consisted of nucleated cells, which, according to Dr. Paterson, were about the  $\frac{1}{1000}$  of an inch in diameter. Dr. Henderson inoculated with some of this matter, but without producing any result; and he remarks, very justly, that if the disease be considered to be an affection of the sebaceous glands alone, the inoculated substance would not be likely to take effect, unless it were brought in contact with the internal surface of a sebaceous duct.† But Dr. Henderson may rest assured that the disease is not contagious. Some excellent figures accompany this paper; numbers 1 and 5 are admirable for their truthfulness.

532. *Cases observed by Dr. Paterson.‡*—This gentleman records five cases of molluscum contagiosum. The first he saw in a child eighteen months old, robust and healthy, and the daughter of cleanly parents, the father being a fisherman. The little tumours had the pathognomic form,

\* Edinburgh Medical and Surgical Journal, vol. lvi., 1841, p. 213.

† A more effectual mode of inoculation would be to rub the secretion briskly into the skin in a situation where sebaceous glands are abundant.

‡ Edinburgh Medical and Surgical Journal, vol. lvi., 1842, p. 279.

the constricted base, the central aperture, and the oozing of milky fluid. They varied in size from that of a pin's head to that of a horse-bean, the smaller ones resembling "pearly granulations" (sebaceous miliary tubercles.) They were seated chiefly on the face and neck, and were not painful on being touched. After the appearance of the disease in the child, some tumours of the same character were detected on the breast of the mother at which the child sucked. The bulk of these latter varied from a pea to a hazelnut, and on being pressed, exuded the same milky fluid.

A second instance of these little tumours occurred in a female child of two years old. They were between thirty and forty in number, and were distributed upon the neck, shoulders, face, and trunk. Their development is as ascribed to being nursed by a girl who had some tumours on her skin.

Dr. Paterson's third instance is not so satisfactory as the preceding; it is that of a young man who had several little tumours on the penis, which he said resembled similar tumours situated on the vulva of his wife.

Dr. Paterson inoculated with some of the milky fluid, but without producing any effect. This gentleman gives an admirable description of the minute structure of these tumours and of their contents, and a beautiful figure of the disease accompanies his paper.

533. The remarkable case of albuminous sarcoma of the integument of nearly the entire body, described by Mr. Hale Thomson\* under the title of "albuminous molluscum," and the case of carcinomatous integumentary tumours detailed by Dr. Turnbull,† physician to the Huddersfield Infirmary, must be referred to a group, embracing *diseases in the form of tumours affecting the integument in common with the other tissues of the body*. They do not, necessarily, originate in the skin; indeed they more frequently take their origin in the subcutaneous textures: they are not limited to the skin, but involve the adjacent tissues, and they are generally met with in other parts of the body as well as in the integument.

(B.) *Retention of secretion in the sebaceous ducts, the excretory aperture being closed.*

#### SEBACEOUS MILIARY TUBERCLES.

Syn. *Follicular elevations*. Rayer. *Pearly tubercles*.

534. Little tubercles of a white colour, of about the size of a millet seed, and sometimes of a small pea, caused by the collection of the sebaceous substance within an excretory follicle; the aperture of that follicle being impervious, are very commonly met with on the face and neck of women and children, and persons having a thin and delicate skin. Rayer calls them follicular elevations, but I have thought the term *sebaceous miliary tubercles* more appropriate. A very common seat of these little

\* Lancet, vol. ii., 1841. The paper is illustrated with two excellent lithograph drawings.

† Edinburgh Medical and Surgical Journal, vol. lvi., p. 463.

elevations is the thin skin of the lower eyelids, where they sometimes attain to an inconvenient size. I have seen several cases in which the movements of the lid were interfered with by their growth. They are very easily removed by puncture with a fine lancet, and gentle pressure; the operation is by no means painful, for the integument covering them is reduced by distention to a mere film. Touching the interior of their sac with a fine point of nitrate of silver effectually prevents their return.

#### CALCAREOUS MILIARY CONCRETIONS.

535. In place of sebaceous substance more or less inspissated, it sometimes happens that the secreted matter partakes rather of the calcareous character, being more or less dense and hard, and having carbonate and phosphate of lime in combination. Meckel found a number of these concretions in the skin of the gluteal region, and Voigtel\* records an instance as occurring on the forehead and root of the nose. Dr. Julius Vogel† has described another case of this disease affecting the scrotum. The integument of the scrotum was the seat of severe itching; on the cessation of the itching a number of small conical tubercles were developed, which increased to the magnitude of a pea or hazelnut. After reaching maturity, the little tubercles wasted and became dry, and were followed from time to time by successive crops. At the period of detailing the case, they were one hundred and fifty in number, seated in or beneath the corium. The contents of these tumours were a white, greasy, and softish substance, like atheroma. Examined chemically, it was found to consist of carbonate and phosphate of lime, with a trace of soda, a small proportion of fat, and some extractive matter.

#### SEROUS CYSTS.

536. Sometimes, instead of sebaceous or calcareous substance, I have seen the excretory follicles of the sebaceous glands distended with a limpid serous fluid, and attaining to the size of small grapes. A gentleman lately consulted me, on whom there were two of these grape-like cysts, connected with the border of the upper eyelid; they were semitransparent and tense, and interfered very much with vision. I punctured them with a cataract needle, and after the escape of the fluid, touched the shrivelled cysts with nitrate of silver; the integument soon healed, and they are not likely to re-appear.

#### ENCYSTED SEBACEOUS TUMOURS.

Syn. *Follicular tumours. Wen. Meliceris. Atheroma. Steatoma.*

537. These tumours, identical in manner of formation with the sebaceous miliary tubercles, but somewhat more deeply seated in the integument, attain to the size of a hazelnut or walnut, and sometimes to the

\* Handbuch der Pathologischen Anatomie.

† Allgemeine Zeitung für Chirurgen innere Heilkunde und ihrer Hülfswissenschaften, July, 1841.

magnitude of a small orange. They may occur singly, or several may be developed in the same person, particularly when situated on the head. Their common seat is the scalp and face, but they are occasionally seen on other parts of the body. A few years since, I removed one of large size from the integument of the back, and I have also seen them on the abdomen and in the groin.

The sebaceous substance collected in these sacs is variously altered in its qualities or appearance. Sometimes I have seen it limpid and fluid, like serum, and containing crystals of stearine; at other times, it is soft and white, reminding us of pap, or bread sauce—this constitutes the *atheromatous* tumour; again, it is yellowish, and resembles softened bees'-wax—the *melicrous* tumour; or it may be white and fatty—the *steatomatous* tumour; at other times, it presents various peculiarities of character, more or less referrible to the above heads. The parietes of these cysts are the walls of the excretory duct of the sebaceous gland and related hair-follicle, in a state of hypertrophy, lined in the interior with epidermis. The sebaceous substance which they contain is mingled with epidermic scales and hairs, having a similar origin to those found in the sebaceous accumulation of comedones. (§ 511.) When the parietes of the cyst inflame, its contents are often exceedingly fœtid. In consequence of the pressure exerted on the scalp by these tumours, the neighbouring hair-follicles are frequently destroyed, and the superjacent skin becomes bald.

The encysted tumours of the eyelids, and some of the polypi of the meatus auditorius, are of the same nature.

538. *Treatment*.—The common practice in the treatment of these tumours is to dissect them out, and this is usually done with great care, under the impression that a particle of the cyst left behind will grow, and develop another tumour. This reasoning is most unphilosophical, and I doubt if empirically it be correct. A portion of the cyst left behind may interfere with the healing of the wound, but a portion of cyst can possess no power of reproducing a dilated and hypertrophied hair-follicle and excretory duct of a sebaceous gland. The removal of these tumours is always a painful operation, and in certain cases, when seated in the scalp, dangerous, from the possibility of the occurrence of erysipelas. I have succeeded several times in curing encysted tumours, by laying them open with a lancet or bistoury, pressing out their contents, and injecting the cyst with a solution of nitrate of silver, or touching its internal surface with the solid caustic, and this plan I prefer to the painful process of excision.

## V. INFLAMMATION OF THE SEBACEOUS GLANDS AND IMMEDIATELY ADJACENT TISSUES WITH OR WITHOUT ALTERATION OF SECRETION.

539. The diseases coming under this definition are two in number, Acne and Sycosis, the former being developed in the sebaceous glands of the entire surface of the body, and the latter being confined to those which open into the follicles of the larger hairs, especially of the chin, the upper lip, and the sides of the face. Both are chronic diseases, and of variable duration.

## ACNE.

Syn. *Ionthos*. *Varus*. *Couperose*, Fran.—*Hautfinne*.  
*Kupferfinne im Gesicht*, Germ.

540. Acne is a chronic inflammation of the sebaceous glands\* and of their excretory hair-follicles. It is characterized by the eruption of hard, conical, and isolated elevations, of moderate size, and of various degrees of redness. The apices of the elevations generally become pustular, and burst, while their bases remain for some time in an indolent state before they disappear. On the apices of some of these elevations, the opening of the hair-follicle is distinctly apparent, while in others, the aperture is destroyed by the pustule. In some, the purulent fluid is mingled with softened sebaceous substance, while others subside slowly without supuration. Some, again, scarcely differ in tint of colour from the adjacent skin, while others are highly congested, and surrounded by an inflamed base of vivid redness.

Acne is usually accompanied by other signs of disorder of the sebaceous follicles: thus, in some situations, the glands appear to be excited to undue action, and pour forth an inordinate quantity of secretion, which gives to the skin a glossy appearance; in others, their action is torpid, the sebaceous fluid is concreted into a solid form, and distends the excretory duct and hair-follicle even to the orifice, where coming in contact with the dust and dirt diffused through the atmosphere, the concreted matter is discoloured, and has the appearance of a brownish or black spot. If a fold of skin including any one of these black spots be pressed between the fingers, the concreted matter is forced out, and resembles a small white maggot with a black head. These concretions are popularly known as maggots or grubs. Moreover, in this state of skin a number of small, white, sebaceous miliary tubercles, may also be observed.

The term acne would seem to be derived from *ακνη* or *ακμη*, as though

\* Dr. Gustav Simon regards acne as a disease of the hair-follicle alone, an opinion which he supports by the observation of hairs, and sometimes a perfect hair-follicle, being found in the sebaceous mass squeezed out from their interior. I take a different view of the pathology of the disease, considering disease of the sebaceous gland to be present in the first instance, or concurrently with that in the related hair-follicle. Alteration of the sebaceous substance (§ 511) is the consequence of that disease, (probably inflammation of the lining membrane of the gland;) impaction of the altered sebaceous matter follows, and in the suite of this impaction, imprisonment of hairs, which, in the normal state of the organs, would have been thrown off and carried away with the fluid sebaceous secretion. That the hair-follicle must be implicated in disorder of the sebaceous glands is obvious, from the structure of these organs; for, with rare exceptions, every sebaceous gland in the body opens by means of its excretory duct into a hair-follicle, and the latter performs the office of an efferent canal.

Dr. Simon also suggests, that the *acarus folliculorum* may, in some instances, be the cause of acne, by exciting the sebaceous glands to increased action in the first instance; and the hair-follicle being in consequence over-distended, becomes subsequently the seat of inflammation. This author thinks that the effect of inflammation of the dermis immediately surrounding the hair-follicle is the separation and ejection of the follicle. Here he is undoubtedly in error; the epidermic lining may be and is thrown off by the formation of pus by the surface of the follicle beneath it, but there is no sloughing of the follicle.

it would imply that which is indeed the fact with regard to this disease—namely, that it prevails during the mid-period of life, from the age of puberty to the commencement of old age. It may be developed on all parts of the body, but is most frequently met with in those where the integument is thick, as the back, the shoulders, the backs of the arms, and fore-arms, and the breast, or on those parts which are exposed to the influence of the atmosphere, as the face and neck.

541. The varieties of acne, according to Willan, are four in number—namely, acne simplex, acne punctata, acne indurata, and acne rosacea. The first three of these are mere modifications of the same form of disease; indeed, the same elevation may, at different periods of its growth, present each of the appearances indicated by these three designations. I shall therefore take the more simple course of describing the affection as appearing under two principal forms—namely,

Acne simplex,  
,, rosacea.

#### ACNE SIMPLEX.

542. The simple variety of acne commences by small red and inflamed elevations, which gradually become prominent and conoid, and secrete a small quantity of pus at their extremity, while the base remains hard and of a deep red colour, and is surrounded by an inflamed areola of small extent. The suppuration is slow in attaining its completion, usually continuing for six or eight days; at the end of this period the pustule bursts, and the effused fluid desiccates into a thin brownish scab, which leaves at its fall an indolent tubercle of a purplish or livid hue, and frequently a small white and permanent cicatrix. The tubercle remains for a considerable period after the rupture of the pustule, and disappears very slowly. The eruption of acne is generally unaccompanied by pain or heat, and gives rise to little inconvenience beyond that which is caused by its unsightly appearance. When, however, it is developed near to a filament of a sensitive nerve, as of the fifth, upon the forehead, the pain is sometimes most distressing. The elevations of acne are for the most part successive in their eruption, so that they may be observed at the same moment in all their stages; at other times, and more rarely, a numerous crop may be developed at once.

It frequently happens, that in the centre of each of the conical elevations, and always in some, a small round blackish spot may be perceived. The presence of this spot is the especial characteristic of *acne punctata*;<sup>\*</sup> it is the aperture of a hair-follicle, distended with inspissated sebaceous substance (§ 511) up to the level of the skin, and discoloured at the surface by exposure to the dust and dirt contained in the atmosphere. After having supplicated and discharged the sebaceous substance, the elevation diminish in size, they become purplish and livid, and, at a later period, whitish in colour, and disappear by degrees. The punctated form of acne is generally intermingled with the simple variety.

Occasionally the eruption is remarkable for the indolence of its course;

\* *Acne punctata* is consequently a comedo, with the superaddition of inflammation of the sebaceous gland and hair-follicle.



the inflamed elevations are very hard, and deeply rooted in the integument; the suppurative stage is prolonged two or three weeks before reaching its height, and frequently fails altogether, and after suppuration is completed, the purplish or livid tubercles continue for months, sometimes becoming permanent, and at other times leaving indelible cicatrices: this is the *acne indurata*. When the indolent form of acne affects any region extensively, as, for instance, its more common seat, the face, the features are greatly disfigured; the entire surface is more or less covered with tubercles of a deep red or livid colour, and variable size, and the integument between the tubercles is thickened and congested.

## ACNE ROSACEA.

Syn. *Bacchia*.

543. Acne rosacea is especially characterized by the redness and congestion which attend its conoidal elevations; by the enlargement and frequently varicose state of the veins of the dermis; by the tardiness of course of the papular elevations; the slowness of their suppurative stage, and the indolent character of the livid and indurated tubercles which they leave behind. The integument around the elevations is of a deep purple or violet hue, the congestion is increased by a continuance of the causes which gave rise to the disease, and the skin of the affected parts becomes permanently thickened, uneven, and tubercular. The more usual seat of acne rosacea at its outbreak is the nose, which is often considerably enlarged by the morbid action; the integument and subcutaneous textures become infiltrated and hypertrophied, and the cutaneous veins tortuous and varicose. From the nose the disease extends to the cheeks, the forehead, the chin, indeed, to the entire face, disfiguring the features very seriously. The congestion of acne rosacea is increased towards the evening, by taking food, and by the use of every kind of stimulant taken internally.

544. *Diagnosis*.—The diagnostic characters of acne are, the conoidal form of the inflamed elevations, the suppuration of some of these elevations at their apices, the tardy growth and disappearance of others, the livid and indolent tubercle left behind by both; their evident seat in the sebaceous glands, and the disorder of neighbouring glands evinced by the increased secretion of some, the concretion of the secretion of others, and the presence of sebaceous miliary tubercles. The particular characters distinguishing the varieties of acne are, the absence of any appearance of excretory follicle in acne simplex; the presence of an excretory aperture in acne punctata; the indolent course of acne indurata, and the general distribution of all these varieties over the surface of the body. Acne rosacea is distinguished from the preceding by the greater vascularity of the elevations, the congestion and thickening of the surrounding skin, and the especial seat of the eruption on the face.

Secondary syphilis sometimes assumes the characters of acne; but the copper-coloured appearance of the eruption, its large, soft, flat, and glossy tubercles, the ulcerations which succeed the pustules, and the presence of other signs of syphilis, sufficiently mark its nature.

545. *Causes*.—Acne simplex is developed at all ages between the pe-

riod of puberty and the fortieth year, and occurs in both sexes, more frequently, perhaps, in the female than in the male. Acne rosacea is a disease of adult life, and is also more frequent in the female than the male. The presence of acne indicates a disordered state of cutaneous innervation, and, consequently, of the vascular action of the skin; in some instances it is induced by direct congestion of the integument, as in acne rosacea, while in others it would seem to depend on torpidity of the capillary circulation, and obstruction to the current of blood by sudden and irregular excitation. Torpidity of the capillary circulation is indicated by the altered secretion of the sebaceous glands, which so constantly accompanies the disorder, and, indeed, by the general want of cutaneous activity in persons so affected. The latter cause is present for the most part in the acne of young persons, in that which occurs at puberty, or as a consequence of close application and sedentary employment, or mental fatigue. This kind of disorder of the cutaneous functions is also associated with amenorrhœa.

Congestion, on the other hand, is the active agent in the eruption arising from general plethora, from the partial plethora which occurs at the critical period of life in females, from exposure of the face to strong heat, from excesses in diet or stimulating drinks, from the use of cold drinks in a heated state of the body, and from the local application of irritating substances. Of the latter, it is proper to mention the abuse of certain stimulating washes and powders employed as cosmetics. Partial congestion would seem to be the exciting cause of the eruption, when it is induced by irritation of the gastro-pulmonary mucous membrane.

546. *Prognosis.*—Acne simplex is removed without much difficulty; but the rosaceous variety is always intractable, and often, from the nature of its seat, incurable.

547. *Treatment.*—The treatment of acne must be adapted to the cause of the affection; in those cases in which a torpid action of the cutaneous system is evident, stimulating remedies must be employed, whereas in those which are dependent on congestion, stimulants would be highly injurious, and would serve to prolong the morbid action. In both cases the regimen should be judiciously regulated; it should be light, cooling, and moderate, and all stimulating diet carefully avoided. To this hygienic management, gentle laxatives, antacids, tonics, &c., may be added, with a view to order the secretions, and regulate the digestive functions. Whenever other general indications present themselves, they must be especially attended to; thus, in young women at the period of puberty, the state of the uterine functions must be ascertained, and at the critical period of life derivative measures may be employed, with every probability of success.

Whenever the indication is obviously congestive, bleeding should be had recourse to, locally, in the milder cases; generally to a greater or lesser extent, as the state of the constitution may decide, in the more obstinate forms.

In applying the local treatment, due regard should be had to the ordinary principles of surgery; when the pimple is congested and painful, it should be punctured, and the bleeding encouraged by water dressing or poultice; and where pus or sebaceous substance are suspected to exist embedded in the tubercle, a free puncture, succeeded by a poultice, is especially indicated. Much benefit is also to be derived from the vapour douche. When the local determination has somewhat subsided, stimu-

lants may be employed; for this purpose, the vapour douche medicated with iodine or sulphuretted hydrogen is likely to be useful; or a stimulating ointment, such as that of the ioduret of sulphur, in the proportion of a scruple to an ounce of elder-flower ointment or simple cerate. In the simple, as well as in the other varieties of acne, when they present a chronic character, a solution of the bichloride of mercury in emulsion of bitter almonds, such as that of Gowland's lotion, or of the same salt in eau de Cologne, in the proportion of half a grain to an ounce, will be found of great service. A solution of sulphur, in spirit of wine or brandy, has been recommended as a local application, but this merely acts upon the general principle of stimulation, and is inferior in every respect to the solution of the bichloride.

## SYCOSIS.

Syn. *Mentagra*.

548. Sycosis is a chronic inflammation of the cutaneous textures, very analogous to acne, and apparently differing from that affection only in its site—namely, on the hairy parts of the face, the chin, the upper lip, the submaxillary region, the region of the whiskers, the eyebrows, and sometimes the nape of the neck. The disease is most probably developed in the sebaceous glands, and thence extends to the hair-follicles, and their immediately related tissues, giving rise to conical elevations, which become pustular at their apices, and are each traversed by the shaft of a hair. The pustules of sycosis are of a pale yellowish colour; they burst in the course of a few days, and pour out their contents, which concrete into dark, brownish crusts. The crusts fall at the end of one or two weeks, and leave behind them purplish and indolent tubercles, which remain for some time longer, and subside very slowly. The inflammatory action accompanying this eruption often produces thickening of the integument, and frequently extends to the subcutaneous textures. In this way, the roots of the hairs sometimes become affected, and fall out, leaving the skin entirely bald.

The eruption of sycosis is preceded by a painful sensation of heat, and tension of the skin; this is followed by several small red spots, which rise in the course of a few days into conical elevations, and upon the summits of these, the pale yellow pus, characteristic of this eruption, is formed. At their first appearance, these pustular elevations are few and scattered; in subsequent attacks their number is increased, until at last the whole of the chin and sides of the face may become thickly studded. The eruption is very variable in extent, sometimes affecting one side of the chin alone; at other times, the whiskers and submaxillary region are solely attacked, while in another case, the disease is confined to the upper lip. When the subcutaneous textures are affected, the integument is raised into tubercles and tumours of considerable size, which are more or less covered with pustules and crusts, and have a very repulsive appearance. In this state, the integument retains its tuberculated, thickened, and congested appearance for the rest of life. When the disease declines, the pustular elevations cease to be developed, the tubercles diminish in size, and the epidermis is thrown off by repeated desquamations.

*Sycosis contagiosum*.—M. Gruby, of Vienna, who has recently distinguished himself by his researches into the vegetable nature of favus, and

by the announcement of the discovery of vegetable formations in other diseases, has just (Septémer, 1842) addressed a paper to the Academy of France, on a new cryptogamic plant, existing in the roots of the hairs of the beard, and around that portion which is contained within the hair-follicle. By the transmission of the seeds of this plant the disease is rendered contagious, and he proposes for it the name of *mentagrophyte*.

M. Gruby gives the following account of the disease:—It is limited to the hairy part of the face, but is most frequently seen upon the chin, the upper lip, and the cheeks. It covers all these parts with white, grayish, and yellowish scales, which measure from two to six millimetres in breadth, and from three to eight in length. The scales are slightly raised in the middle, their borders are angular, and they are pierced at all points by hairs; they are but loosely connected with the skin, but so closely with the hairs, that in removing a scale we at the same time pull out a hair.

Examination with the microscope discovers to us, that the scales are composed of epidermic cells, but the whole of the dermic portion of the hair is surrounded by cryptogamic formations, which constitute a vegetable sheath around it, in such manner, that the hair implanted in this vegetable sheath may be likened to the finger surrounded by a glove.

It is worthy of remark, that these cryptogamia never rise above the surface of the epidermis; they originate in the matrix of the hair, and in the cells of which the follicle is composed, and they ascend so as to surround all that portion of the hair included within the dermis. They present everywhere a prodigious number of sporules, which are adherent on the one side with the internal surface of the follicle, and on the other, with the cylinder of the hair; to the former they are very closely connected.

Each plant is composed of a stem, of several branches, and of sporules.

This disease of the skin, continues M. Gruby, is an affection of a purely vegetable nature, and is deserving of occupying a place among those disorders—such as favus and aphtha—which consist in the development of parasitic plants, and which might, very properly, be termed *Nosophyta*.

549. *Diagnosis*.—The diagnostic characters of sycosis are, the conical form of the pustular elevations, the bright red colour of their bases, their deep-seated relations with the integument, the purplish and indolent tubercles which succeed them, and the site of the eruption. They are distinguished from acne by their situation, and by their relation to the hair.

The pustular diseases, ecthyma and impetigo, have a different character of pustule to that of sycosis; those of the former are large, prominent, and phlyzacious; while the pustules of impetigo are small, not raised above the surface, clustered, and psudracious. The mode of termination of the pustules is equally different: in ecthyma they form large and thick crusts; those of impetigo pour out an abundant secretion, which desiccates into bright yellow crusts; while the crusts of sycosis are hard, thin, and of a deep brown colour. Moreover, ecthyma and impetigo leave behind them no tubercular thickening of the integument.

Syphilitic pustules are distinguished from those of sycosis by the absence of heat and tension, by the flatness of the pustules, by their tardy progress, by their coppery and violet hue, and by their general dissemination over the face. Syphilitic tubercles differ from those of sycosis chiefly by their coppery hue and glossy surface. They are not confined to the hairy parts of the face, and they terminate in ulcerations of greater or lesser depth.

550. *Causes*.—Sycosis is a disease of the male sex, but in rare instances

has been seen in the female. It may occur at any period of the year, but commonly makes its attack in the spring or autumn season. The most frequent exciting cause of the disease is the irritation resulting from the use of a blunt razor, in persons predisposed to such affections, on account of the susceptibility of the cutaneous textures. Other sources of predisposition are, exposure to the night air, intemperance, excesses in diet, uncleanly habits, destitution, &c. A very common direct cause is exposure to heat; hence we find sycosis to be prevalent among those who work near a large fire, as founders, cooks, &c. M. Foville has observed the disease to be transmitted by contagion, from the use of a razor employed in shaving an affected person.

551. *Prognosis.*—Sycosis is a very troublesome and obstinate affection, lasting for months, and often for years. This may be inferred when it is recollected that shaving is frequently the primary cause of the disorder, and the necessary continuance of the cause cannot but protract the chances of cure. The disease sometimes gets well spontaneously during the summer, to reappear in the colder months of the year.

552. *Treatment.*—The foremost indication in the treatment of sycosis is the removal of the cause; to this end, the razor must be used with more care, or set aside for awhile. The stimulus of excessive heat must be avoided, intemperate habits must be restrained, and a light and cooling diet enjoined. To these rules, which tend to the diminution of the general excitement of the system, may be added the use of laxatives, as of the milder forms of neutral salts, Seidlitz and Rochelle, preceded, according to the judgment of the practitioner, by one or several doses of calomel or blue pill. If the patient be full and plethoric, a general bleeding will be found a necessary preparation for local remedies. In the chronic state of the affection, it may be desirable to subject the patient to the influence of a mercurial course, and if the system exhibit any signs of debility, tonic remedies or steel medicines may be employed. In the congested state of skin accompanying the eruption, leeches should be applied, or the part well scarified with the point of a lancet, both of these measures being followed by a vapour douche of half an hour or an hour's duration, or by a poultice. The vapour douche will be found an invaluable remedy at all periods of the eruption, and should be frequently used. In the chronic state of the affection, the use of iodine, either in the form of vapour or ointment, may be tried, with a prospect of success. Other remedies that may be beneficially used in this disease are, zinc ointment, the spirituous lotion of bichloride of mercury, a solution of sulphuret of potash, nitrate of silver, &c.

Whenever the hairs are found to be loosened, they should be immediately pulled out, as in this state they are calculated to act as agents of irritation. Mr. Plumbe regards the hairs as the especial cause of the obstinacy of this disease; I do not, however, wholly agree with him in this respect.

## CHAPTER XV.

## DISEASES OF THE HAIRS AND HAIR-FOLLICLES.

553. THE hair is liable to a variety of modifications, some resulting from altered nutrition, others from inflammation, either of the formative pulp of the hair, or of the hair-follicles. These modifications, alterations, and diseases, I propose to consider, under the six following heads—namely,

Augmented formation of hair,  
Diminished formation of hair,  
Alteration of colour of the hair,  
Diseases of the pulps of the hair,  
Diseases of the hair-follicles,  
Abnormal direction of the hair.

## I. AUGMENTED FORMATION OF HAIR.

554. Augmentation of formation of the hair calls for consideration in a two-fold point of view: firstly, it relates to simple increase of quantity or length in situations naturally occupied by hair—*abnormal quantity*; and secondly, to increase of quantity or length in unusual situations—*abnormal situation*.

(A.) *Abnormal Quantity.*

555. Great variety is met with among individuals in relation to quantity of hair; in some persons I have observed the hairs collected into groups of three, and in many situations two have issued from the aperture of the same follicle; while in other persons the hairs are distributed at regular distances, and are not clustered. This difference is remarkably exhibited in hairs of different colour, in consequence of the greater diameter of black than of light hair. Withof found the thickness of very black hair to be  $\frac{1}{572}$  of an inch; that of brown hair,  $\frac{1}{608}$ ; and that of blond hair,  $\frac{1}{790}$ . In accordance with this measurement, the same author calculated 147 black hairs on a square inch of integument of the scalp; 162 of chestnut, and 182 of blond hair.

556. In the present age, when custom and convenience call for the frequent shortening of the hair, we can form very little notion of diffe-

rences involved in rapidity of growth. There can be no doubt, that in some persons the growth of hair is more active than in others, but to what extent this difference may be carried is unknown. Judging from female hair, which is permitted to grow to its full length, as well as from hair on other parts of the body, we may rightly infer, that hair left to itself grows to a certain length, and then falls off, to be replaced by a fresh growth. Withof estimates that the hair of the beard grows one line (French) in the course of a week, let us call it one line and a-half (English;) this would amount to six inches and a-half yearly; and if we suppose, with Withof, that the hair continues to grow at this rate for fifty years, the old man of seventy must have retrenched his beard upwards of twenty-seven feet in length. Men with exceedingly long hair are met with at all our country fairs, and Rayer quotes the following instance of remarkable development of this production:—"I once saw a Piedmontese, aged twenty-eight, strongly built, having the chest broad and large, and the muscles of an athlete; the arm was above twenty-one inches, and the calf of the leg nearly two feet in circumference. This man had little beard, and the trunk was very scantily furnished with hair, but his scalp was covered with the most extraordinary crop; frizzled on purpose, it was above four feet ten inches in circumference; the hair was of a dark-brown, approaching to black, extremely fine and silky."

557. It is interesting to remark, that increase in length of the hair is sometimes associated with disease; and in truth we know little of the effects produced upon the system by the habit of removal of the hair. I have known persons who always experience headach after having the hair cut, and many cases are on record in which the removal of the hair is supposed to have given rise to remarkable effects. Moreau has published some excellent observations\* on the advantages and dangers of cutting the hair; and he especially details the case of a young lady cured of mania by cutting her hair. The hair is often found of unusual length in phthisis, and long black eyelashes are considered pathognomic of strumous disease. This is an interesting observation in relation to phthisis, inasmuch as it serves to illustrate, in another point of view, the vicarious activity which the skin assumes in disordered function of the lungs.

(B.) *Abnormal Situation.*

PILOUS NÆVI.

Syn. *Moles. Mother's marks.*

558. When it is recollected that every part of the skin, with the exception of the palms of the hands and soles of the feet, is organized for the production of hair, it will cease to be matter of surprise that, under certain circumstances, hair should be found to grow to a remarkable length in unusual situations. The proximate cause of this increased growth is augmented nutrition of the hair pulps, determined by local or constitutional conditions, the local conditions being either special organization

\* *Journal Générale de Médecine*, vol. iv., p. 280.

of the skin, or external irritation of that organ. In both, the skin presents a deeper tint than usual, from increased deposit of pigment in the cells of the rete mucosum, and a greater thickness from hypertrophy of the hair pulps and follicles.

Local increase of length of hair, depending on special organization of the skin, is usually congenital, and is exemplified in the various forms of *pilous nævi*, or *moles*. In these nævi there is no hypertrophy of the capillary structure of the skin, as in vascular nævi, but simple augmentation of colour, the consequence of increased activity, and augmentation of thickness, the natural result of enlargement of the hair-follicles and pulps. Pilous nævi appear in various number, and in patches of different size, upon all parts of the body. They are slightly raised above the level of the surrounding skin, and are covered by hair of variable length. In illustration of this subject, Alibert records the case of a young lady, whose skin was studded over nearly every part of the body with moles of a deep-black colour, from which a long, black, thick, and harsh woolly hair was produced. M. Villermé again, in his article on the hair, in the *Dictionnaire des Sciences Médicales*, observes—"I saw at Poitiers, in 1808, a poor child, between six and eight years of age, that had a great number of mother's marks disposed in brown projecting patches of different dimensions, scattered over various parts of the body, with the exception of the feet and hands. The spots were covered with hair, shorter, and not quite so thick as the bristles of a wild boar, but presenting considerable analogy with them. This hairy covering, with the spots upon which they grew, occupied, perhaps, one-fifth of the surface of the body."

559. Sometimes, however, the disposition to the growth of hair is not confined to so limited a spot as a nævus, but exists over a surface of considerable extent. A few years since, I saw a young lad, about twelve years of age, of healthy aspect and constitution, who presented a most unusual growth of long, harsh, and black hair, upon the outer sides of the arms, extending from the backs of his hands to the shoulders. The integument upon which the hair was situated was of a brownish colour, and contrasted remarkably with the lighter coloured skin of the rest of his arm, and of the body generally. The contrast was less striking near the circumference of the hairy growth, from the circumstance of the brownish tint terminating imperceptibly in the ordinary colour of the cutaneous surface. The skin, in other respects, was uniform with the rest of the integument; it was neither raised nor tumefied, nor did it differ in temperature from the neighbouring parts. The hairs in this case were about three-quarters of an inch in length, much darker in colour than the hair of the head, conical, and differing from the eyelashes only in being longer and finer. On examining the skin with a lens, the hair might be seen extending deeply, in an oblique direction, into the integument. On plucking out some of the hairs, and placing them in the field of the microscope, I found them to be provided with a bulb, and to be identical in appearance with the hairs of the head, or of the whisker.

Schenkus and Ambrose Paré record instances in which the body was completely covered with hair; and Daniel Turner relates, quoting from Peter Messias, on the authority of Damascenus, "that upon the confines of Pisa, at a place called the Holy Rock, a girl was born all over hairy,



from the mother's unhappy ruminating, and often beholding, the picture of St. John the Baptist, hanging by her bed-side, drawn in his hairy vesture."

560. Bichat, in his treatise on General Anatomy, remarks, that hairs are occasionally developed on the surface of mucous membranes, as in the bladder, stomach, and intestines, he also discovered them on the surface of renal calculi. In the gall-bladder, he once found about a dozen hairs, evidently implanted by roots in the tissue of the mucous membrane. M. Villermé states that hairs have been found on the tongue, pharynx, in the rectum, uterus, and vagina, growing from the mucous membrane.

561. *Local* increase of length of hair, depending on external irritation of the skin, is illustrated in the following cases:—In a little girl recovering from an attack of fever, a considerable growth of hair took place on the site of a blister which had been applied to the nape of the neck. The hair in this case increased to the length of half an inch, but evinced no disposition to grow longer; it was nearly as dark in colour as that of the head, was harsh, but smooth, and thickly planted in the skin. Rayet records a parallel case; and Boyer was wont, in his lectures, to speak of a man who suffered from an inflamed tumour in the thigh, which subsequently became covered with numerous long hairs. Rayet mentions another case, occurring in a medical student, who had several hairy patches on the skin, induced, apparently, by frequent bathing in the summer season, and exposure to the scorching rays of the sun.

562. Augmented growth of hair in abnormal situations, arising from *constitutional* conditions, is illustrated in numerous interesting instances which have from time to time been recorded. In some of these, the unusual growth appears to result from general disorder of the system; in others, it is the consequence of a particular modification of the economy. Of the former kind is the case of a young lady, narrated by Ollivier:\* she was remarkable for the whiteness of her skin, and for a fine head of jet-black hair; while recovering her strength after the effects of a chronic gastro-enteritis, she perceived, one day, that the entire surface of her skin, both on the trunk and extremities, was raised into small pimples, resembling those produced by cold, and commonly called *goose-skin*. At the end of a few days the pimples presented a small black head, and shortly after, they were found surmounted by a short hair, which grew very rapidly, so that at the end of a month, every part of the body, with the exception of her face, the palms of the hands, and soles of the feet, was covered with a short hairy coat. The individual hairs reached the length of an inch, and were very closely planted.

563. Hair is sometimes developed to a considerable length on the upper lip and chin of women at different periods of age. It occurs most frequently in those possessed of a naturally strong growth of hair, and of a dark complexion. In young women, it is frequently associated with disturbed menstrual function. This fact is observed by Hippocrates, but I have seen several instances in which no such disturbance existed, where the vital functions were well performed, and where the subjects were remarkable for robust health. The development of hair upon the upper lip, and upon the chin, is more common in unmarried females of a certain age, in whom, from inaction, the ovaries have become atrophied; it is also observed in

\* Dictionnaire de Médecine, article Poil.

sterile married women. In both these cases, other changes, evincing the deprivation of the peculiar characteristics of the sex, are observed, such as dwindling of the mammæ, absorption of the subcutaneous adipose tissue, harshness of voice, masculinity of deportment, of action, &c. A similar condition is remarked in women who have ceased to menstruate, either from natural or pathological causes. John Hunter, alluding to the circumstance of female birds, after having ceased to breed, assuming the plumage and other attributes of the male, says, "We find something similar taking place even in the human species, for that increase of hair observable on the faces of many women in advanced life, is an approach towards the beard, which is one of the most distinguishing secondary properties of man." "The female, at a much later time of life, when the powers of propagation cease, loses many of her peculiar properties, and may be said, except from mere structure of parts, to be of no sex, even receding from the original character of the animal, and approaching in appearance towards the male, or perhaps, more properly, towards the hermaphrodite."

564. *Treatment*.—Where the growth of hair has become a deformity which the patient is desirous of having removed, several modes of local treatment may be adopted. If its seat be isolated and small, as on a pilous nævus, the best treatment is excision, which, when carefully performed in the direction of the natural furrows of the skin, scarcely leaves any trace of cicatrix. Another mode of getting rid of hair is by means of the ciliary forceps, or tweezers. Their complete eradication will, however, be found difficult, for the formative pulp still remains, and the hairs are constantly reproduced. A third mode of removing hair is by *depilatories*; these are powders composed of quick lime, subcarbonate of soda, or potash, and sulphuret of arsenic. They are applied in the form of a paste, and washed off as soon as dry; they act by desiccating and dissolving the hair, and require to be employed with caution, on account of their irritating nature. Depilatories are merely temporary removers of the hair, for it is clear that their agency can extend no farther than the epidermis; the hair-pulps consequently remain, and the hair is not long in being reproduced. Several formulæ for depilatory powders will be found at the conclusion of the treatment of favus, § 596.

## II. DIMINISHED FORMATION OF HAIR.

### ALOPECIA.

Syn. *Defluvium pilorum*.

565. Alopecia, or baldness, results from defective development or atrophy of the formative pulps of the hair, and occasionally from disturbed circulation of the hair-bulbs. Sometimes the baldness is *congenital*; at other times it is *accidental*, appearing after the full growth of the hair, and causing its fall to a greater or less extent; and again, it may be the *natural* consequence of age—*calvities*. Under these three heads,

therefore, I propose to consider the phenomena presented by the defective state of formation of the hair—namely,

Congenital alopecia,  
Accidental alopecia,  
Natural alopecia.

CONGENITAL ALOPECIA.

566. Congenital baldness is sometimes but very rarely observed in newly-born infants, in whom, though well-formed and healthy with regard to every other function, the hair has been retarded in its appearance until the end of the first year, and sometimes so long as the second and third years. I have never seen an instance of congenital absence of the hair of the head, but I have met with cases of deficiency in other regions, as upon the chin and pubes. “Congenital absence, and ulterior defective development of the hair,” says Rayer, “are phenomena of considerable rarity, which I have, nevertheless, had opportunities of observing. Such was the case of the man Beauvais, who was a patient in the Hospital de la Charité, in 1827. The skin of this man’s cranium appeared completely naked; although, on examining it narrowly, it was found to be beset with a quantity of very fine white and silky hair, similar to the down that covers the scalp of infants; here and there, upon the temples, there were a few black specks, occasioned by the stumps of several hairs which the patient had shaved off. The eyebrows were merely indicated by a few fine and very short hairs; the free edges of the eyelids were without cilia, but the bulb of each of these was indicated by a small whitish point; the beard was so thin and weak, that Beauvais only clipped it off every three weeks; a few straggling hairs only were observed on the breast and pubic region, as in young people on the approach of puberty; there was scarcely any under the axillæ; it was rather more abundant on the inner parts of the legs; the voice had the pitch and intonation of that of a full-grown and well-constituted man. Beauvais is not deficient in the virile indications of his sex; he has had syphilis twice. He tells us that his mother and both his sisters had fine heads of hair, whilst his father presented the same defect in the commodity of hair which he does himself.”

ACCIDENTAL ALOPECIA.

Syn. *Porriigo decalvans*. *Tinea tondans*. *Alopecia circumscripta*. *Area*.  
*Tyria*. *Ophiasis*.

567. Accidental baldness is a more common affection than congenital deficiency in the development of hair. I have seen numerous instances, in which the baldness has been nearly complete upon the scalp, one or two small islets of hair-bearing integument alone remaining, while the hair of the eyebrows, whiskers, and beard, was totally lost. In one of these cases, I found the scalp smooth and polished, thinner than natural, and somewhat stretched over the cranium, giving the idea of an abnormal increase in the convexity of the bones of the head. There was, however,

no such condition present. When examined closely, the scalp was seen to be studded with numerous superficial, minute, dusky points, the almost obliterated hair-follicles. In the course of a few months from this time, with appropriate treatment, the tenseness, thinness, and polish of the scalp became diminished; the follicles could be seen extending to a greater depth into the scalp; and the mouth of each follicle became the seat of a small pimply elevation of the epidermis. This I regard as the commencement of the second and restorative stage of the disease; the entire surface at this period has the appearance of the cutis anserina, and, in the course of a very few days, a minute downy hair may be seen extending from the apex of each little projection. This stage of the case is frequently accompanied by an itching sensation, produced by the imprisonment of the hair within its follicle, the aperture being partially closed by the corrugated edge of the epidermis, and, frequently, by a minute operculum formed by the hardened secretion of the follicle. The operculum is rubbed off, in the attempts of the patient to relieve this itching by friction or scratching, and the downy hair, before invisible, becomes apparent. The newly-formed hair is for some time thin, dry, and slender, and lighter in colour than the adjacent hair, but after a time it gains its proper hue.

Instead of affecting the entire head, the hair sometimes falls off, without any premonitory symptoms, to a limited and circumscribed extent only, leaving one or more roundish patches on the scalp, of which the surface is smooth, white and depressed. On examining the skin at this part, it is evident that the hair-follicles are either very much diminished in size, or in many instances entirely gone, particularly towards the centre of the patch, in which situation the scalp is obviously thinner than in the surrounding part. This, like general accidental alopecia of the scalp, is clearly an atrophy of the hair-follicles of the part affected. To this form of the disease various names have been assigned by different authors. From presenting a regularly circumscribed disk of baldness, surrounded by long and unaffected hair, it has been named "*alopecia circumscripta*," and "*area*." When several of the patches run into each other, so as to present a serpentine form, it has been called "*ophiasis*," but its more common designation is that which it received from Willan. Observing that, as in favus, the hair was lost in the form of roundish patches, Willan assigned to the disease the name of "*porrigo decalvans*," and the Messrs. Mahon have termed it "*tinea tondans*."

#### CALVITIES.

##### Syn. *Senile Baldness*.

569. Alopecia, the natural consequence of age, is a change taking place gradually in the follicles, by which the secreting structure, from deficiency of nutrition, becomes atrophied, and the follicles themselves obliterated. The change is usually preceded by dryness, and loss of colour of the hair. But baldness of this kind is not necessarily confined to old persons; it is daily observed at an earlier period of life, as at forty, thirty, and sometimes in persons still younger. Occasionally it results from mental anxieties, severe afflictions, &c.; but at other times comes on without apparent exciting cause.

In association with the baldness of age, it is interesting to observe, that alopecia occurs on the vertex of the head, in that situation in which the integument is bound down somewhat tightly upon the bones of the cranium, and where the circulation is least abundant, and most likely to be interfered with. We frequently see it limited on each side by a line which corresponds accurately with the parietal ridges, and posteriorly by the situation of the upper margin of the posterior portion of the occipito-frontalis muscle, while, below this line, over the temporal muscle at each side, and over the occipito-frontalis muscle behind, the hair still remains comparatively unaffected. It is obvious that in this case the cause of the fall of hair must be sought for in the impediment to circulation through the texture of the scalp of the upper part of the head; and in correspondence with this interference, we remark the exceeding paleness of the cranial region. But the same cause may be supposed to have existence also in women, unless we admit that the larger quantity of adipose tissue situated beneath the integument of the scalp may afford an easy and unimpeded transit for the minute vessels to the capillary plexus of the dermis.

I am the more induced to suppose that this may be the case, from observing the indisposition to baldness on the pubes, where a thick cushion of fat is interposed between the hard parts and the surface, and the vessels are enabled to make their passage through a soft and yielding medium to their distribution in the papillary layer of the skin.

The integument of the scalp of old persons who have been bald for some time, is remarkable for its extreme smoothness. Bichat observes, that he examined the scalp of several bald heads by dissection, and he invariably found that the internal surface of the integument, when raised from the fat and superficial fascia was remarkably even. There was no trace of the numberless appendages constituting the follicles of the hairs which are found in the hairy scalp. On the contrary, in a man recently bald from typhus fever, the follicles were distinctly apparent, and contained each a minute, colourless, down-like hair, the rudiment of a fresh growth. Hence, he continues, there is this important difference between the baldness of the aged and that which succeeds disease; that in the first, the whole of the secreting structure dies, (that is, becomes atrophied,) from the cessation of circulation in the vessels of the part, whereas in the latter, the hair alone falls, while the follicle remains behind.

Bichat has also remarked, that the follicles of the hair, when seen from the external surface, appear to become more and more shallow, until they at last reach the surface, and are obliterated completely. The same change may be observed on the surface of tumours forming in the scalp. The integument becomes gradually thinned, the hair-follicles become more and more shallow, until every trace of them has disappeared, and the hairs which they once contained fall off.

570. *Causes.*—The proximate causes of baldness have been already stated; they are, defective development of the hair-pulps, defective circulation in the hair-pulps, and defective nutrition of the hair-pulps. The remote causes are, hereditary peculiarity, the termination of acute diseases, certain diseases of the skin, certain general affections, syphilis, mercury, coffee taken in excess, late hours, extremes in venery, old age. The falling off of the hair which occurs during convalescence from fevers and diseases, attended with extreme depression of the vital powers, must be ascribed to the enfeebled powers

of the system, and consequently to defective nutrition of the hair. Lemery\* mentions the case of a patient, who, some months after a violent hypercatharsis, lost the whole of his hair.

The hair may suffer from any disease in which the activity of the nervous and vascular systems is directed especially to any one portion of the body, as in some local diseases. I have seen nearly the whole of the hair of the scalp lost during the progress of an ordinary pregnancy. In rheumatism and gout, the hair is liable to grow dry, and fall off. The loss of hair is sometimes remarkably exhibited in phthisis,† in which disease not only the hair of the scalp, but also that of the eyebrows and beard, is apt to fall. This change is particularly observable in young women possessed of extremely long hair. Numerous instances, in which alopecia is attributed to syphilis, are detailed in the works of old authors, but they are exceedingly rare at the present day, since this disease has been thoroughly investigated and treated on more scientific principles. I have only twice seen a partial loss of hair, attended by dryness and furfuraceous desquamation of the epidermis, in patients affected with the secondary symptoms of this disease; and in both of these cases I was induced to ascribe the source of the malady rather to the abuse of mercury than to the original disease. Mercury, when taken for a length of time, is apt to affect the secreting organs of the body injuriously, and among these, the secreting apparatus connected with the skin. M. Lagneau, in his article "Alopecia," in the "Dictionnaire de Médecine," expresses a different opinion, as relates to the operation of mercury. He remarks, that it is erroneous to suppose that persons affected with syphilis are rendered bald by the abuse of mercury, for alopecia has been seen to manifest its presence, occasionally, before the patients have employed this remedy, or any other anti-syphilitic medicine whatsoever. On the other hand, he continues, I do not believe that any one ever saw alopecia developed, after the cure of other diseases in which it is customary to exhibit mercury. The principal local diseases of the skin which give rise to the fall of the hair are, impetigo, sycosis, and favus.

Baldness is much modified by sex; in the male it is a common affection, but in the female, on the contrary, it is rare. I am disposed to believe that the difference between the sexes lies in the greater proportion of subcutaneous fat existing in the female. The scalp of bald persons is usually excessively thin, and eunuchs, who are generally fat, are remarkable for the length and permanency of their hair.

571. *Treatment.*—The principal indication to be fulfilled in the treatment of baldness, is to stimulate the capillary circulation of the scalp, which is evidently below the natural standard. With this view I am in the habit of recommending the washing of the head every morning with soap, drying it by friction with a rough towel, brushing it with a hard hair brush until redness is produced, and then applying some stimulating application, rubbed briskly into the scalp for the space of five minutes. The application which I commonly advise is either the following spirit,

\* Mem. de l'Acad. des Sciences, prem. mem., vol. ii., p. 39.

† Hippocrates remarks, "Quibus tabe laborantibus, capilli de capite defluunt, hi, alvi, fluxu supervenienti, moriuntur."

℞  
 Eau de Cologne, ℥ij.  
 Tincture of cantharides, ℥ij.  
 Oil of rosemary,  
 Oil of lavender, of each, ℥x.  
 M.

or a pomatum containing cantharides or croton-oil; the latter requires care in its employment. I have also used iodine, in obstinate cases, with much success. Besides these, numerous stimulating substances have been suggested and used from time to time with advantageous results; such are, mustard, horse-radish, walnut leaves, the pomades of Dupuytren and Gibert, &c. The pomatum ascribed to Dupuytren is the following:—

℞  
 Purified beef marrow, ℥viiij.  
 Acetate of lead, ℥j.  
 Peruvian balsam, ℥ij.  
 Alcohol, ℥j.  
 Tincture of cantharides, cloves, and canella, āā ℥xv.  
 Mix.

The trichogenous ointment recommended by Gibert consists of

Purified beef marrow, ℥vj.  
 Oil of sweet almonds, ℥ij.  
 Powder of red bark, ℥j.  
 Mix.

Avicenna recommends the use of leeches, slight scarification or acupuncture in the first instance, followed by rubefacients. The latter were in high favour among the ancients, and they have left of them in their writings a goodly list, of which the following are the principal:—oils of chamomile, wormwood, bay, laurel, and dill; hellebore, euphorbia, pomegranate, nasturtium, stavesacre, fœnugreek, rosemary, sage, Peruvian balsam, tar, frankincense, mastich, myrrh, and ladanum. Ladanum is warmly praised by Dioscorides and Galen, and occupies a place in most of the local applications for baldness.

It would not, however, in all cases, be judicious to limit the treatment of baldness to external remedies. In cases where disturbance of the secretive and digestive functions are present, these require attention. Where the energies of the nervous system are obviously reduced below their natural level, steel medicines and tonics may be used with advantage.

When the hair begins to grow after baldness, it is at first of a very light colour, dry, soft, and almost downy, like the young hair of a newly-born child; but by degrees, under favouring circumstances, it resumes the colour and strength of the surrounding hair. At other times this colourless hair remains during life, and forms a remarkable contrast with the dark hair of the rest of the head. The restoration of the hair to its primitive strength is greatly favoured and accelerated by repeated shaving of the scalp, the object of this operation being to confine the nutritive fluids to the formative structure of the pulp, until it shall have regained sufficient power to produce hair of a proper degree of size and strength. Many authors concur in the advantage of shaving as a means of strength-

ening the hair. Fallopius upon this subject observes, “ Il y a quarante ans que nous portons la barbe longue, en signe de notre déshonneur et de notre servitude; avant cette époque nous nous rasons et nos poils ne tombaient pas. Les Espagnols en envahissant l’Italie, y ont introduit la tyrannie, la verole, et l’usage de la barbe longue.”

### III. ALTERATION OF COLOUR OF THE HAIR.

572. Alteration of colour of the hair arises from disorder of the chromatogenous function of the hair-pulp, and is very commonly associated with alteration in tint of the rete mucosum of the skin. It is by no means a rare occurrence to find a lock of hair different in colour from that which surrounds it. Less frequently, sudden alterations of colour have been observed, while blanching of the hair, or canities, is the natural effect of the torpor of function which accompanies age.

573. Two instances of reproduction of hair of different colour to the original, after recovery from severe illness, are recorded by Alibert; in one of these, a head of bright red hair replaced one of dark brown, and in the other, hair of a deep black colour took the place of brown. In the case of baldness from hypercatharsis, mentioned in the preceding section (§ 570,) the hair, originally of a brown colour, was reproduced blond, and gray hair has been known to fall off in advanced age, and a new crop, similar in colour to that possessed in youth, to be substituted.

Dr. Isoard, in a paper, entitled, “ Observation relative à une famille dont chaque individu présente plusieurs anomalies remarquables,” in the “ Journal Complémentaire du Dictionnaire des Sciences Médicales,” amongst other extraordinary physiological and pathological anomalies observed in the members of this family, remarks, that one of the daughters, seventeen years of age, and deaf and dumb from birth, each time that she is attacked by a fever peculiar to her constitution, undergoes a change in the colour of her hair, from a pleasing blond to a dusky red, but that so soon as the febrile symptoms diminish, the natural colour is restored. In the second volume of the “ Memoirs of the French Academy of Sciences,” is the narrative of a case in which the hair of a female was changed from brown to blond during her confinement, which otherwise presented no remarkable feature. M. Villermé\* relates the case of a young lady, thirteen years of age, who, having never suffered from any more serious illness than slight pains in the head, perceived, during the winter of 1817–18, her hair to fall off in several situations, until, at the end of six months, there was not a single hair remaining. In January, 1819, the scalp began to display a new growth, of a black-coloured wool, in the situations first affected, and of brown hair over the rest of the head. The wool and the brown hair became white, and partly fell off after they had reached the length of three or four French inches, while the rest changed their tint at a certain distance from the point, and became chestnut-coloured for the rest of their extent towards the root. The hair had a singular appearance, half white and half chestnut. The specimens sent to the society were mingled with a number of short hairs entirely chestnut coloured. In remarking upon the preceding case, M. Villermé

\* Journal Générale de Médecine, vol. lxi., p. 213.



observes, that he has more than once seen the hair, particularly in phthisical patients, after having become white, and fallen off, succeeded by a crop of new hair of a darker colour even than the original hair of the patient. The late Dr. Chaumenton presented this phenomenon in a marked degree.

Dr. Bruley, a physician of Fontainebleau, communicated to the Society of Medicine in Paris, in the year 1798, the history of a woman, 66 years of age, named Castellane, whose hair, naturally white and transparent as glass, became jet-black four days before her death. She died of phthisis. Some of this hair was transmitted to the society, and was found to be quite black, with a few white hairs interspersed. On examination after death, Dr. Bruley found the bulbs of the black hair of an immense size, and gorged with dark pigment. The roots of the white hairs which remained were dried up, and two-thirds smaller in size than those of the black hair. In remarking upon this case, Dr. Bruley observes, "It is certain that disease may give rise to a change in a short period, that, according to Haller, requires a long period to accomplish naturally."

## CANITIES.

Syn. *Trichosis poliosis*. Good. *Blanching of the hair*.

574. Under the term canities, I propose to describe whiteness of the hair, whether its production be congenital, or dependent upon age, disease, or other causes. Dr. Copland regards the term as applicable only to whiteness resulting from an abnormal cause; hence he defines it, "hairs prematurely gray, hoary, or white." Canities present two varieties in *degree*; in the one the hair is "snowy," of an opaque white, and corresponds in thickness with ordinary hair; in the other, it is clear and transparent, the "silvery hair" of age, assuming a yellowish tint on exposure to the atmosphere, and not unfrequently thinner than ordinary hair. These two offer remarkable chemical differences; the former containing an abundance of calcareous salts, and the latter a much smaller quantity, or even none.

575. Canities may be of three kinds; congenital, accidental, or senile; it may also be, in either of the three groups, partial or general.

576. Congenital whiteness of the hair is usually partial; I have seen two examples in young children where the phenomenon presented itself in the form of roundish patches; both were of the snow-white kind; in the one the patch was situated on the side of the head, while in the other it occupied one side of the forehead. The skin upon which the hair grew was remarkable for its whiteness, and contrasted strongly with the neighbouring integument. Bartholin saw an infant, the whole of whose hair on one side of the head was brilliantly white, while the opposite side was equally remarkable for its jetty blackness. Ridlinus and others have seen the entire head of young persons uniformly white, although different in appearance from that of old age, and approaching very slightly towards the blond. I have before alluded to the whiteness of the hair of Albinos, both of the European and of the African race. Rayer, in the Atlas accompanying his excellent work upon the diseases of the skin, gives a delineation, copied from a picture in the museum of the Jardin du Roi, of a young negro, upon the middle of whose forehead, and rising from the root of the nose so as to

include a moderately large patch of hair on the front of the head, is a broad tract of skin wholly deprived of pigment: the hair is perfectly white, and the white band on the forehead is rendered the more striking, by presenting a roundish islet of deep black near its middle. On the same plate is a figure, representing the head of an Albino negress, copied from Buffon; the skin of the face and the wool upon the head are entirely and completely white. Schenkus details the case of a young man, whose beard grew white on its first appearance.

577. Accidental and senile canities present varieties in *extent*; sometimes the whiteness is partial, being intermingled with the ordinary hair over the entire head, and producing, according to its proportion, the relative shades of gray. At other times it is local, and confined to one or several spots, constituting so many distinct patches; or it may be general, and involve the entire head of hair. It commences generally upon the temples, and thence spreads gradually over the rest of the head. Blanching of the hair occurs first upon the head; it proceeds in the next place to the hair of the face, and subsequently attacks the pilous covering of other parts of the body. When white hair falls off it is not reproduced, but the scalp beneath remains bald. In Europe, canities would appear to be equally common in the male and in the female; but attacks the latter at a later period of life, unless induced by other causes than age. "In China," says Mr. Lay, "the women turn gray sooner than the men; the former are often bald, the latter seldom."

Blanching of the hair generally commences by its free extremity, and thence proceeds towards the root; sometimes, however, the whitening begins in the scalp, and the coloured part is gradually carried onwards, farther and farther from the integument. I have observed that it is the opaque white, or snowy hair, which most frequently obeys the latter rule, and the silvery hair the former. It is curious to see the hair undergoing this change, partycoloured in appearance, and reminding us very forcibly of the ringed hair of the gray cat and ichneumon. The kinds of hair most liable to the invasion of whiteness are those of a dark colour, as black and brown; blond and auburn hair rarely become gray, but are more liable to fall off.

578. *Causes*.—Congenital canities depends upon some constitutional peculiarity inherent in the organization of the individual. Senile canities is the consequence of diminished powers of the nervous system, as evinced either in the alteration of the pigment deposited in the formative vesicles of the hair, or in the entire absence of the colouring principle.

The remote causes which have been observed to give rise to accidental canities are, mental emotion, physical suffering and privation, constitutional affections, disease, and injuries. Of mental emotion, as of grief, anxiety, fear, terror, anger, acting as exciting causes of blanching of the hair, there are numerous recorded instances. In some of these cases the effects were gradual, in others they were immediate, producing the silvery tints of age in the course of only a few hours.

"The different passions of the mind," says Bichat, "have a remarkable influence over the internal structure of the hair; often, in a short period, grief effects changes in its colour, blanching the hair probably by means of absorption of the fluids contained in its tissue. Many authors have recorded similar facts. Some, and Haller amongst the rest, have doubted the truth of these assertions, but I know at least five or six ex-

amples, in which the loss of colour was completed in less than eight days. In a single night, a person of my acquaintance became almost entirely blanched on receiving some distressing news."

The hair of Marie Antoinette, the wife of Louis XVI., is said to have become gray in a short period, from grief. The same statement is recorded with regard to Mary Queen of Scots. It is affirmed that Sir Thomas More became gray during the night preceding his execution. Borellus asserts that two gentlemen, the one a native of Languedoc, the other a Spaniard, were so violently affected, the first by the announcement of his condemnation to death, the latter by the bare thought of having incurred a serious punishment, that both became blanched in the course of a single night. Borellus adds, with regard to the latter gentleman, that his hair regained its natural colour on being set at liberty. Schenkius and Boyle relate similar instances, but without the subsequent restoration. Hermeman also records an instance of sudden loss of colour in the hair.

Dr. Cassan, in a paper in the "Archives Générales de Médecine," before referred to, records the example of a woman, thirty-three years of age, who, on being summoned before the Chamber of Peers to give evidence upon the trial of Louvel, underwent so powerful a revulsion, that in the course of one night the hair was completely blanched, and a furfureous eruption appeared all over her head, upon her chest, and upon her back. After the disappearance of the eruption, the hair still maintained its abnormal colour.

Henry III. of Navarre, on hearing that the edict of Nemours was conceded—a condition favourable to the supporters of the league—was so exceedingly grieved, that in the course of a few hours a part of one of his mustachios whitened. In a person referred to by Rayer, several of the cilia became blanched, accompanied by white spots over the arms and fore-arms, in consequence of mental agitation.

M. Moreau\* observes—"I once knew an aged man, for whom snow-white-hair, and a countenance deeply-marked by the furrows of care, inspired the respect which we owe to age and misfortune." "My hair," said he, "was as thou seest it now long before the latter season of my life. More energetic in their effects than assiduous toil and lingering years, grief and despair at the loss of a wife most tenderly loved, whitened my locks in a single night. I was not thirty years of age. Judge, then, the force of my sufferings; I still bear them in frightful remembrance."

The poets make frequent reference to this remarkable and sudden effect of violent mental emotion. Thus a Latin author exclaims—

"O nox! quàm longa es, quæ facis una senem!"

Byron also, in the "Prisoner of Chillon," refers thus beautifully to the same phenomenon:—

"My hair is gray, but not with years,  
Nor grew it white  
In a single night,  
As men's have grown from sudden fears."

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\* Journal Générale de Médecine, vol. iv., p. 280.

After favus, it sometimes happens that the newly-formed hair remains permanently white; the same change is occasionally observed upon cicatrices left by wounds.

#### IV. DISEASES OF THE PULPS OF THE HAIR.

##### PLICA POLONICA.

579. The only affection which can properly be regarded as a disease of the formative pulps of the hair, is the *plica polonica*, a disease peculiar to Poland.

In *plica*, the scalp is inflamed and excessively tender, the hairs are swollen and imperfectly formed, they are tinged with a viscous and reddish-coloured fluid, and the hair-follicles secrete an abundance of this fluid, which agglutinates the hairs, and by desiccation unites them into a solid mass. The tenderness of the scalp in these cases is so excessive, that the bare touch of a single hair excites pain, and when cut across, the reddish fluid with which the hairs are surcharged oozes from the divided extremity. This appearance, together with the extreme sensibility, has given rise to the supposition of their being sarcofied, and pervaded with vessels and nerves. The odour arising from a scalp so affected is described as being exceedingly disgusting; excoriations of considerable extent are frequently formed, and the matted hair becomes the resort of countless pediculi. *Plica* is not confined to the scalp, but affects the hair on every region of the body; the nails of the fingers and toes are also changed, becoming rough, fibrous, and discoloured. Left to itself, the disease lasts for ten or twelve months; the symptoms then subside gradually, the hair returns to its natural diameter, and the filthy mass is pushed by degrees farther and farther from the surface, until it falls off spontaneously, or is cut away by scissors.

The hair presents some modifications, in the manner of its matting, which bear relation to its length. Thus, in males who wear the hair short, numerous locks are matted separately, constituting the variety known as *plica multiformis*, at other times the matted hair forms a single coil, the *plica caustiformis*; or, again, it may constitute a large and irregular mass without order in its matting, the usual character of the disease in women.

*Plica* is accompanied and often preceded by severe febrile symptoms, with pains in the head, lethargy, &c., and with troublesome pruritus.

Several authors have asserted, that in the majority of cases the scalp is not affected in *plica*, and that the alteration in the hair occurs at a certain distance from the integument. This assertion is incredible, and it seems more reasonable to conclude, that in the cases adduced in support of this statement, the disease was advancing towards cure, and consequently that the morbid mass of hair was removed by growth from the surface of the scalp. A recent writer on this subject, Dr. Bidder,\* makes the following remarks:—"During the past summer I remained for several weeks in a country where *plica polonica* is frequent. The disease occurred only in a mild form. In all the cases which I examined, about twenty in num-

\* Müller's Archiv., 1840.

ber, I found the hair, for a distance varying from half an inch to one inch from the scalp, perfectly natural; one would have believed that the disease had been removed from the head by the growth of the hair. The scalp was perfectly normal, being neither reddened, swollen, nor increased in sensibility, so that disease of the hair would appear to be capable of existing independently of disorder of the scalp in which the matrix is embedded.

“I also had an opportunity of observing the process of separation of the diseased from the sound hair. Two individuals presented themselves in whom the morbid mass had fallen by spontaneous separation—a rare occurrence. Once alive to the possibility of such a process, I soon discovered in two cases a groove, as though made by a ligature around the cylinder of the hair, and forming a perfect line of demarcation between the healthy and diseased portion of the hair. In some hairs the groove resembled a mere crack, in others it had proceeded so far that the separation was nearly effected. In other cases I was unable to discover the line of demarcation.”

580. *Causes.*—The causes of plica are not well known; it is met with in the rich as well as in the poor, but is most prevalent in marshy districts, and upon the banks of rivers.

581. *Treatment.*—Little is known with regard to the treatment of plica: it seems generally admitted that no attempt should be made to cut the hair while in its morbid condition.

## V. DISEASES OF THE HAIR-FOLLICLES.

582. The diseases of the follicles of the hair are, simple inflammation, and special inflammation, attended with the development of a peculiar organic substance, the latter constituting the disease termed favus.

### INFLAMMATION OF THE HAIR-FOLLICLES.

583. Inflammation of the hair-follicles is of the chronic kind, and obscure in its symptoms. It is generally accompanied with a slight erythematous blush upon the surface, with itching, and frequently with dryness and falling of the hair. I have seen several cases of cutaneous disease, evidently referrible to this affection of the hair-follicles.

584. *Morbus pilaris.*—Sometimes inflammation of the hair-follicles, when very slight, gives rise to the production of a small quantity of albuminous secretion which concretes at the aperture of the follicle, and renders it impervious. The hair, in this case, is imprisoned beneath the small operculum of the follicle, and continuing to grow, becomes twisted in a spiral form, and coiled in a circle at its mouth. In this manner a number of little pimply elevations are produced on the surface of the epidermis, each elevation corresponding with a coiled hair, and if the apex of these pimples be rubbed off, the twisted hair will be at once exposed. Flourens conceives that this is the natural mode of growth of the hair in the fœtus.

This trifling affection I have usually observed on the legs and thighs. Turner remarks, that in children it frequently occurs on the back; it is

attended with itching, and occasionally with acute, lancinating pains, comparable to the piercing of the skin with a sharp needle.

585. *Treatment*.—The first of these disorders may be relieved by the use of the warm bath, and inunction with some simple pomatum, such as cold cream. The second I have succeeded in removing, by the application with friction of a strong solution of subcarbonate of soda, in the first instance, with a view to dissolve the albuminous product, and following it up with ablution with warm water, or a warm bath, drying the skin afterwards with a rough towel. This treatment should be repeated from time to time.

### FAVUS.

Syn. *Kerion*. *Porrigo*.\* *Tinea*. *Tinea maligna*. *Teigne faveuse*. Alibert.—*Ringworm*. *Porrigophyte*. Gruby.

586. Favus is a chronic inflammation of the hair-follicles, associated with the production of a peculiar yellowish substance which surrounds the cylinder of the hair, and is seen through the epidermis as a minute circular spot, not raised above the level of the skin. The yellow substance, after a short period, escapes from the follicles upon the surface of the epidermis, and desiccates into yellowish friable crusts, forming a distinct cup with an inverted border, around the base of each hair. When a number of these cups are aggregated together, they give rise to an appearance somewhat resembling the cells of a honeycomb; hence the generic designation of this disease—*favus*. The hair included within the diseased follicle is altered in its appearance and growth; it becomes thin, discoloured, and twisted, and is eventually thrown off, the formative structure being destroyed by the extension of the disease to the deep textures of the skin. When the disorder declines, the affected skin is left bald and smooth, but if it continue unchecked, it gives rise to morbid alteration of all the textures, down to the bones of the cranium, and is prolonged to an indefinite period. The ordinary seat of favus is the scalp, but it may extend thence to the face and neck, and, indeed, to the entire body. The disease is highly contagious, and is communicable by contact to any part of the skin.

587. Favus presents two principal varieties bearing relation to the mode of distribution of the disease among the follicles: in one of these, individual follicles, dispersed at various distances, are affected *favus dispersus*;

\* No term has been more abused in medical nomenclature than has the word *porrigo*, and the confusion which exists in relation to the precise disease intended to be conveyed by the appellation will not cease, until the term is discarded altogether. It is with this view that I have made no use of it in the present treatise, other than as a synonym. The species of *porrigo* of Willan, applied by that author to the disease under consideration, are two—*porrigo lupinosa*, corresponding with our *favus dispersus*; and *porrigo scutulata*, the *favus confertus*. A very common appellation for favus in the words and works of many of the most eminent English practitioners of the present day, and, indeed, the most correct term, is *porrigo favosa*. Here I conceive Willan erred; for both that author and Bateman employ the designation as significant of a variety of impetigo—impetigo of the scalp. *Porrigo larvalis* is impetigo faciei; *porrigo furfurans* appears to be an eczema, or, probably, pityriasis; and *porrigo decalvans* an alopecia.

while in the other, a number of contiguous follicles, forming a patch of moderate size and rounded form, are diseased, the latter constituting the *favus confertus*.

#### FAVUS DISPERSUS.

Syn. *Porrigo lupinosa*.

588. The occurrence of favus dispersus is first indicated by the appearance of minute isolated points of a yellow colour, around the cylinders of the hair, dispersed in various situations on the scalp. These yellow points increase in size and number, they are surrounded by redness of the integument, and accompanied by considerable pruritus. The yellow substance contained within the hair-follicles shortly escapes, and desiccates into small, cup-shaped crusts, of a bright yellow colour, porous and friable in texture, and having inverted borders. The crusts increasing in size, frequently attain the diameter of several lines, and are closely adherent to the skin. When exposed for some time to the action of the air, the crusts lose their yellow colour, and become whitish; they also become more brittle than at first, and easily break. If left to themselves, they remain adherent to the surface for months, and even years; and fresh accumulations from the hair-follicles go on producing additional crusts, until the entire scalp becomes covered by one dense and uniform crust. But the crusts rarely reach the extent here described, they give rise to considerable inflammation of the skin and intense itching, and are torn or rubbed off in the efforts made by the patient to relieve himself by scratching. Those parts of the scalp which are free from favus, are also inflamed to a trifling extent, and are covered by desquamated epidermis.

When the crusts collect to any considerable extent, the chronic inflammation of the integument which is set up will continue until the whole of the tissues of the scalp, down to the bones of the cranium, are involved in the morbid action. The odour\* which emanates from the diseased mass is excessively disgusting, and unless attention to cleanliness be paid, pediculi are engendered in vast numbers, and add still more to the irritation. When the crusts in this latter case are removed, the surface of the scalp will be found covered by ulcerations of various depth, which pour out a quantity of red and fœtid fluid. This fluid desiccates into brownish irregular scabs, wholly dissimilar to those produced by the yellow matter from the hair-follicles.

The consequences of the morbid action here described are not limited to the textures involved in the disease; subcutaneous abscesses are frequently formed in various situations, and the occipital and cervical glands not unfrequently become congested and enlarged.

When the resolution of the disease of the scalp is effected, the scalp is left smooth and shining, and deprived of hair, and the integument is much thinner than heretofore. It frequently happens, that upon these bald spots the hair never again returns, or if it be reproduced, it is thin and woolly, and altered in its colour. In course of time, the hair regains more or less of its natural appearance, and the scalp is restored to its wonted thickness.

\* Alibert compares it to the urine of cats.

## FAVUS CONFERTUS.

Syn. *Porrigo scutulata*.

589. Favus confertus is distinguished from the preceding by the appearance of the disease in the form of circular disks and rings. It commences by erythematous patches of a circular form, and attended with considerable itching; upon these patches the minute yellow spots characteristic of the disorder are soon perceived in considerable numbers, and affecting the whole of the hairs included within their area. The crust which results from the escape of the yellow substance, from so large a number of follicles, is irregular on its surface, of a grayish yellow, in place of the bright yellow tint of the discreet variety, and corresponds in extent with the area of the patch. The disks increase in size by the extension of the morbid action to the follicles situated immediately around their circumference, and in this way they attain considerable size. When it happens, as is usually the case, that several patches are developed in the first instance, they meet each other in their circular growth, and the scalp presents one extensive and irregular crust, bounded at its circumference by an outline formed of numerous curves, which represent so many segments of circles of larger or smaller diameter. The same remarkable appearance, traced in red lines, is perceived on the surface of the scalp, when the crust is removed. The crust in some instances becomes so extensive, as to cover the entire scalp, and the hair is destroyed over the whole of this surface, with the exception of a narrow margin around the circumference, so that the head, under such circumstances, presents a thick, incrustated case, bounded on all sides by a thin fringe of hair.

When the crust is removed the surface of the skin is red and tumid, and numerous yellow points prove that the disease is not yet extinct. Examination of the scalp also shows, that while the circle of the original patches extends by its circumference, the centre is almost deprived of hair, and the characteristic yellow spots may yet be observed around the few shrivelled and twisted remnants that are left.

590. *Pathology*.—The yellow substance which constitutes the crusts of favus has been satisfactorily proven, by recent investigation, to be an organic growth of simple structure, and bearing a marked resemblance to those inferior numbers of the vegetable kingdom, denominated *mould*. The structure of these crusts appears first to have attracted the attention of Remak, who had observed, so early as 1836, their composition of “fungoid filaments.” Professor Schoenlein, of Zurich, next called them to notice in a paper in Müller’s Archiv. for 1839, on the Pathology of the Impetigines, in which he makes no doubt of the fungous nature of the substance, and he illustrates his communication by a rude figure of the appearance which they presented in his observations. In pursuance of Schoenlein’s researches, they were examined by Fuchs and Langenbeck, of Gottingen; more recently they have been studied by Dr. Gruby, of Vienna, who expresses himself to have been ignorant of the labours of Schoenlein. Dr. Gruby has, moreover, given a clear and lucid description of the growth, which he regards as a parasitic plant, and has determined it to belong to the genus *mycodermis*. The following is an abstract of a



paper, from the pen of Dr. Gruby, on this subject, in Müller's Archiv. for the present year:—

“The cup-shaped crust of favus is situated upon a depression of the dermis, and is covered by a sheath of epidermis, which is thickest on its concave, and thinnest on its convex surface. Immediately within the epidermis is a thin layer of amorphous substance, composed of minute molecules; this layer is dense, of a sulphur-yellow colour, and forms a capsule, which is in contact by its external surface with the epidermis, and by its internal surface with a fungous growth. The parasitic growth is attached by means of its roots to the yellow capsule, while its stem and branches extend inwards towards the centre of the capsule, and constitute the whitish-gray and porous contents of the crust. The roots and branches of the mycoderm are smooth, cylindrical, transparent tubuli, which divide dichotomously from point to point. The interior of the tubuli is filled with a granular substance, and divided here and there by transverse septa. At the ends of the branches are situated the seeds of the plant, which are of a yellowish-white colour, and either collected into an irregular assemblage, or disposed in the form of a garland. The diameter of the branches of the mycodermis is  $\frac{1}{1000}$  to  $\frac{1}{250}$  of a millimetre; that of the molecules contained within the tubuli,  $\frac{1}{1000}$  to  $\frac{1}{1000}$  mm.; and that of the seeds,  $\frac{3}{800}$  to  $\frac{1}{100}$  mm. Dr. Gruby has detected seeds in the follicles of the hair, and impacted in the ducts of the sebaceous glands.”

To ascertain the degree of contagious power of the mycodermis, Dr. Gruby inoculated various mammiferous animals, birds, reptiles, and insects, but unsuccessfully; he was equally unsuccessful in his own person, but succeeded, after seventy-six attempts, in reproducing the mycodermis in a cryptogamic plant.

Mr. Busk, in a paper entitled “Observations on Parasitical Growths on Living Animals,” in the Microscopic Journal, (No. 10,) has given an excellent figure of the mycodermis. He represents the branches as consisting of a series of oblong cells connected by their extremities.

However closely the fungous growth here described may resemble a plant, its vegetable nature is very far from being established. The simplest forms of animals are composed, like the mycodermis, of cells, variously connected together; and subsequent research may prove the growth under consideration to be of a similar nature. To my mind there is nothing improbable in the supposition of the origin of the growth from morbidly developed epidermic cells of the hair-follicle, or from the corpuscles of the sebaceous substance. In a preceding section of this work, I have shown that the latter are susceptible of considerable alteration, and that in this state they assume an appearance widely different from that of their normal condition. Mr. Busk also entertains doubts with regard to the vegetable nature of the mycodermis, and deduces an opinion favourable to his opinion, from the chemical analysis of the crusts of favus, given by Thenard, who found them composed of

Albumen . . .	70
Gelatine . . .	17
Phosphate of lime	5
Water and loss .	8

---

100

Dr. Carpenter, in his “Principles of Physiology,” (p. 453,) speaking on

the same subject, remarks—"It has been assumed that the organization is vegetable, because it (mycodermis) consists of a mass of cells capable of extending themselves by the ordinary process of multiplication. But it must be remembered that the vesicular organization is common to animals, as well as to plants, being the only form that manifests itself at an early period of development in either kingdom, and remaining throughout life in those parts which have not undergone a metamorphosis for special purposes. Hence, to speak of *porrigo favosa*, or any similar disease, as produced by the growth of a vegetable within the animal body, appears to the author a very arbitrary assumption; the simple fact being, in regard to this and many other structures of a low type, that they present the simplest or most general kind of organization."

591. *Diagnosis*.—In addition to the especial characters of favus—namely, on the one hand, cup-shaped crusts of a bright yellow colour, and dispersed; and on the other, circular crusts of grayish-yellow, surmounting disks bounded by newly-affected follicles in the circumference, there is one sign by which this disease may be immediately distinguished from all other disorders affecting the scalp; this is, the discoloured, dry, and twisted appearance of all the hairs arising from the diseased follicles. These hairs will be found quite loose, if gently drawn by the forceps, and they are soon thrown off.

When *impetigo figurata* is seated upon the head, it presents to a superficial examination some of the characters of favus, but a remarkable difference is discovered as soon as the appearances are investigated. The eruptions of *impetigo* are true pustules; they are large as compared with the minute yellow spots of favus, are slightly raised above the surface, are situated upon an inflamed integument, form crusts of great thickness, thinner towards the edges, and of a yellowish-brown colour; the excoriated surfaces pour out an abundant secretion, which desiccates into fresh crusts whenever the first are removed; the hair-follicles are wholly unaffected, and the disease is not contagious. If, now, we compare these characters with those of favus, we shall find that the yellow points of the latter are not pustules, that the viscous and semifluid substance which the hair-follicles contain is not pus, that the yellow points never rise above the level of the epidermis, that the inflammation of the adjoining skin is very trifling, that the crusts are not thick, that they are thinner in the centre than at the circumference, that they are of a bright yellow, or grayish-yellow colour, that no secondary secretion accompanies their fall, that the hair-follicles are the essential seat of the disease, that the hairs are consequently destroyed, and that the disease is highly contagious.

When favus occurs upon the surface of the body, unless it have originated by direct contact, it will always be found associated with a similar affection of the scalp. The same characters which distinguish it in the latter situation, are also applicable to its development in other parts.

*Herpes circinnatus* and *lepra* are so different in their nature from favus, and present so few points of resemblance to that disease, as to render a mistake between them almost impossible.

592. *Causes*.—The cause of favus is a special contagion, consisting of the cells or germs of the mycodermis, conveyed either by the winds or by actual contact to the hair-follicles of a sound person. The disease is most easily excited in a weakly and unhealthy state of the system, and particularly in children of a scrofulous diathesis. When once established,

it is highly contagious; it affects persons of all ages, of both sexes, and at all seasons of the year, but is usually met with in children and young persons. Various circumstances predispose to this affection—namely, improper or deficient diet, want of ventilation, humid atmosphere, confined and unhealthy localities, &c. When any one of these causes is present in assemblies of children, as in public schools, the disease spreads with extreme rapidity, attacking the most delicate first, and then extending to the rest. The most frequent mode of transmission is by the employment of towels, combs, brushes, or by the use of hats or caps belonging to affected persons. It has been observed, that children who have been for some time the subjects of favus, are frequently stunted in growth, and inferior in power of intellect.

593. *Prognosis.*—Favus may sometimes get well spontaneously; more frequently, however, if left to itself, it will last for years, and give rise to the most disastrous consequences.

594. *Treatment.*—The indications to be fulfilled in the treatment of favus are four in number—namely, 1. To destroy the vitality of the parasitic growth; 2. To remove all local causes of irritation; 3. To remove all general sources of irritation; 4. To excite the diseased hair-follicles to healthy action, and prevent the reproduction of the mycodermis.

1. The first indication is best fulfilled by impregnating the crusts, and bathing the scalp with a moderately strong solution of bichloride of mercury. This precaution, moreover, prevents the extension of the disease through the medium of fragments of the crusts.

2. The next care should be directed to the removal of all local causes of irritation, among which the hair and crusts occupy the first place. The removal of the hair may be effected either by shaving, or with the scissors; but as the former is sometimes an inconvenient and a painful process, the latter may generally be preferred; and the more particularly, as it is equally efficacious. The scalp should then be thoroughly washed with a plentiful supply of soap, and the crusts removed; this is best effected by means of a local vapour-bath, applied through the medium of a caoutchouc cap. Another mode which may be put in practice when the vapour apparatus is not at hand, is to lay a piece of folded lint wetted in a solution of subcarbonate of soda or potash upon the head, and cover it with an oiled silk or caoutchouc cap, which should include the entire scalp. By means of this simple contrivance, the surface is freed completely of its crusts in the course of twelve hours. Another mode of effecting the same object I mention only to condemn; I allude to the clumsy practice of enveloping the head in a poultice. When the crusts are wholly removed, the scalp should be thoroughly washed night and morning with an abundance of soap, and then carefully combed, the object of the former process being to free the skin of any fresh favous matter that may escape from the follicles, and of the latter, to remove the hairs which have been loosened by the disease, and which are now acting as excitants of increased irritation. In the interim of the ablutions, it is desirable to keep the scalp cool by means of evaporating lotions, so long as any heat of surface or redness remain.

3. The third indication calls for a careful examination into the state of health and constitution of the patient, and the employment of remedies fitted to remove any symptoms of disorder which may there be present. In certain cases, laxatives, alteratives, or tonics, may be necessary to the

perfect cure of the disease. In cases where cerebral congestion is present, I am in the habit of applying blisters behind the ears, or inserting a seton into the nape of the neck.

4. The definition which I have given above of the fourth indication—namely, that its object is “to excite the disordered follicles to healthy action,” will at once suggest to the mind of the practitioner various remedies from among the class of stimulants which may be suited to the treatment of this disease, while it will also serve to explain the meaning of the long catalogue of therapeutic agents which have been vaunted from time to time as specific cures, as well as the endless list of nostrums recommended by empirics. The medicine which I have found to be most valuable in favus, is iodine, either in the form of vapour, and used twice in the day, or tincture of iodine brushed upon the scalp three times a-day, in the morning and evening after each ablution. In the majority of cases, I have succeeded in curing the disease by this plan. Next to iodine, I prefer a spirituous solution of bichloride of mercury pencilled on the patches. With this fluid, I have frequently succeeded in checking the disease at once. On the trunk or limbs, the solution of the bichloride of mercury, or of the nitrate of silver, are very successful.

Other remedies which I have from time to time tried, or have been recommended by practitioners, are, the ioduret of sulphur,\* in the form of ointment; chloruret of lime; sulphuret of potash, either alone or combined with lime water; solutions of sulphate of zinc and copper; lotions of hydrocyanic, acetic, muriatic, and nitric acid; vapour of sulphur; acetum cantharidis; tar ointment; spirit of turpentine; rue; hellebore; black pepper; stavesacre, &c.

It is desirable, in the application of these remedies, to use them, whenever practicable, in the form of solution. All ointments and greasy substances are injurious, not only from the difficulty which presents to their subsequent removal, but also from their filling up the mouths of the follicles, and preventing both the exit of the morbid product and the contact of the medicinal agent with the surface of the follicle.

595. The celebrated treatment of the brothers Mahon is based solely on the strict observance of the second and fourth indications above proposed. They, in the first instance, cut the hair to the length of two inches, apply poultices to soften, and thorough washing with soap to remove the crusts, and then comb the hair repeatedly, in order to draw out all the loosened hairs. Such, indeed, is their estimation of the importance of this process, that they either perform it themselves, or see it done with their own eyes. And, in many cases, there can be no doubt that the continuance of these measures, without any other therapeutic aid, would be sufficient for the perfect cure of the disease. After this preparatory process is accomplished, they rub daily into the scalp, for about a fortnight, a strong stimulating application, under the name of a depilatory ointment, and continue the washing and combing as before. For the next three or four weeks, and until the cure is established, this treatment is pursued with longer and longer intervals, no day being permitted to pass over without a thorough ablution. By the employment of such means, these gentlemen have reaped extraordinary success, curing many cases which had previously resisted every possible mode of treatment, (saving, I opine, the rational one of clean-

\* Recommended by Bielt, ℞j. to ℥ss. to the ℥j.

liness.) Thus, from the year 1807 to 1813, nearly one thousand persons were treated in this manner with success, the mean duration of treatment being fifty-five days.

The Messrs. Mahon make a secret of their stimulating application, their "*pommade epilatoire*," as they call it, forcibly reminding us of the old nurse of St. Pancras and Sir Astley Cooper's *subscription*. (§ 318.) But, fortunately, they cannot deprive us of the power of reflecting on the sense and *modus operandi* of their plan. Dr. Willis, the able translator of Rayer, has the following judicious remark on the treatment of favus:—"Any plan which combines the removal of the hair by gentle means—that is to say, after it is already loosened from the roots, with undeviating attention to cleanliness for about two months, will be found generally to cure favus. I have seen more than one case of this disease get well by the regular use of simple soap and water, with the employment of a small-toothed comb, night and morning, for a month or six weeks. Patience, perseverance, and cleanliness, are the sheet-anchors in all the successful plans of treating this obstinate disease, as they are evidently in that pursued by Messrs. Mahon."

596. I shall here subjoin several formulæ for the preparation of depilatory unguents and powders, in order that my readers may judge of their probable effects. It will, I think, at once be admitted, that these substances can have no power of descending into the follicles, and destroying the hair in that situation, and that consequently their title is at least a misnomer. They can do little more than the razor to sound hair, and on the already loosened and falling hair of favus they can produce no useful effect. In truth, as I have above asserted, they can act merely as stimulating applications to the skin, and are consequently fitted to fulfil the third indication of treatment above mentioned.

*Depilatory ointment (Rayer.)*

℞  
Slaked lime, ℥ij.  
Subcarbonate of soda, ℥iij.  
Hog's-lard. ℥ij.  
M.

*Depilatory powder (Rayer.)*

℞  
Lime, ℥j.  
Subcarbonate of potash, ℥ij.  
Charcoal, in powder, ℥j.  
M.

*Depilatory powder (Plenck.)*

℞  
Lime, ℥iss.  
Sulphuret of arsenic, ℥j.  
Starch, ℥x.  
M.

597. The treatment recommended by Plumbe is too excellent to be passed over without remark. Mr. Plumbe was firmly impressed with the opinion of the older dermatologists, that the hairs acted as sources of irritation to the inflamed follicles, and were the principal agents in keeping up the disease. Hence, his first attention was directed to the removal,

with forceps, of all the loosened hairs; in the second place, he endeavoured to press out of the follicles as much of the favous matter as he was able, and washed it away; he then rubbed some finely-powdered sulphate of copper into the scalp, and removed the excess with water. The sulphate of copper he employed, with the double motive of decomposing the infectious principle of the yellow matter, and of lessening its quantity by constricting the vessels "from which it flows." This plan, repeated a few times, he found successful in arresting the disease, and in effecting a cure. The desquamation of the affected parts of the scalp, and their redness, passed away in a short space of time, and the hair began to reappear in one, two, or three months. When the diseased scalp was covered with crusts and concreted secretions, he commenced his treatment with poultices and fomentations, and when the skin was thickened and inflamed, he recommended cold bathing and strapping with adhesive plaster.

598. M. Devergie\* has recently employed at St. Louis a solution of nitrate of mercury in nitric acid, which he applies by means of a camel's-hair pencil. The crusts speedily become reddish-yellow in colour, and fall at the end of five days, leaving the scalp sound. Caustic solution of iodine he found equally successful in two cases. The disease exhibited no disposition to return after either mode of treatment.

## VI. ABNORMAL DIRECTION OF THE HAIR.

599. Under the head of abnormal direction of the hair, I have assembled two instances of irregularity in its growth and arrangement, not referrible to the preceding groups. They are,

Trichiasis,  
Felting of the hair.

### TRICHIASIS.

600. Trichiasis is an irregularity in the growth and direction of the eyelashes. The cilia in this disorder grow inwards towards the surface of the eyeball, and by rubbing against the conjunctiva give rise to chronic inflammation of that membrane.

The treatment of trichiasis consists in removing the misdirected lashes by means of the ciliary forceps, and preventing their future growth by the application of the nitrate of silver.

### FELTING OF THE HAIR.

601. Felting is a disarrangement of the hair arising from neglect, and has no claim to consideration as a disease. It consists merely in a state of inextricable interlacing of the hair, best expressed in its name. Felting of the hair is rarely met with, and, when it exists, is seen in women, whose long hair affords the only excuse for such a state of disorder. It has been observed after childbed, and in cases of extreme distress.

\* Bulletin Générale de Therapeutique, Oct. 1841.

## CHAPTER XVI.

## SYPHILITIC ERUPTIONS.

602. UNDER the influence of constitutional syphilis, eruptions are developed on the skin, which may assume any one of the elementary forms of inflammation of the dermis, and of its glands and follicles, which are characteristic of disease of this tissue. Thus, of the group of congestive inflammations there is not unfrequently met with a syphilitic roseola, syphilitic erythema, and, occasionally, a syphilitic urticaria. Appertaining to the group of effusive inflammations is an eruption of vesicles, constituting vesicular syphilis. Suppurative inflammation of the dermis offers several forms of pustular syphilis; papular inflammation of the dermis, syphilitic papulæ and tubercles; and squamous inflammation of the dermis, syphilitic lepra, and psoriasis. Besides the preceding disorders, which have their especial seat in the tissues of the dermis, the sebaceous glands, with their efferent hair-follicles, become the subject of syphilitic acne, and the hair pulps and follicles of that alteration which gives rise to syphilitic alopecia.

603. Syphilitic cutaneous eruptions are sometimes developed concurrently with the primary signs, but more frequently are of secondary origin, being associated with one or more of those symptoms which are indicative of secondary syphilis, and occurring after the lapse of a variable period of time, frequently of several weeks, and even of months. For the most part they are chronic in their character and progress, but, in some few instances, are attended with symptoms of acute inflammation, particularly when they belong to the congestive group, or are produced simultaneously with the primary syphilitic affection.

Syphilitic cutaneous eruptions are developed most frequently on those parts of the body which are exposed to the influence of the atmosphere, and in which the capillary circulation is consequently most active. Hence we find them often on the face, the forehead, the neck, the wrists, and hands; and, next in frequency, on the trunk of the body and extremities.

604. There are certain signs which distinguish syphilitic eruptions from all others, and may be regarded as pathognomic; these are, a dulness and coppery hue in the tint of redness, or a lividity in the colour of the patches; a brownish or greenish stain left upon the skin after their decline; an earthy hue of the skin; sometimes a disagreeable odour of the perspiration; and a circularity in the form of the patch. These signs, conjoined with their usual seat on the face and trunk, and especially their association with other symptoms of secondary syphilis, such as ulceration, or thickening of the mucous membrane of the throat, iritis, or periostitis, are sufficient to

establish a correct diagnosis of their nature. The crusts which succeed to the pustular forms of syphilis are remarkable for their greenish or blackish hue, their thickness and density. And the scales of the squamous affections are characterized by thinness, and by their dull and grayish tint.

#### SYPHILITIC URTICARIA.

605. This eruption is a rare form of syphilitic cutaneous disorder, which bears some resemblance to urticaria, but is distinguished from the ordinary forms of that exanthem by the pathognomic characters of syphilitic disease. Alibert describes syphilitic urticaria under the name of "syphilide pustuleuse ortiée."\*

#### SYPHILITIC ROSEOLA.

##### *Maculæ syphiliticæ.*

606. Syphilitic roseola is the most common form of congestive syphilitic eruption. It resembles, in general characters, common roseola, makes its appearance under an acute type, but soon passes into the chronic form. This eruption is usually met with in association with gonorrhœa, occasionally it occurs with primary sores, and sometimes with secondary syphilis. It is developed on the limbs and trunk, as well as on the face and forehead, under the form of small, irregular, and rounded spots, of a coppery red colour, which disappear incompletely under pressure with the finger; they are attended with more or less itching, occur usually in considerable numbers, and are sometimes confluent. The spots make their appearance very suddenly, often in the course of a single night; they remain for a few days at their height, and then fade gradually away, being followed by slight desquamation, and leaving behind them a grayish or livid stain, which lasts for several months.

This affection is distinguished from ordinary roseola by the dulness and coppery hue of its patches, by the permanence of the stains which succeed, and by the absence of febrile symptoms. Moreover, the diagnosis is greatly assisted by the presence of gonorrhœa or syphilis, either in the primary or secondary form. There is some danger, at a cursory glance, of mistaking syphilitic spots for ephelis, but a more careful inspection will at once direct us to a correct diagnosis of the two diseases. In ephelis, the patches are irregular in their form, large, disposed to communicate with each other, and occupy chiefly the front of the chest and abdomen. Moreover, they are yellow in colour, attended by considerable itching, and covered by desquamating epidermis. The syphilitic spots, on the contrary, are rounded, small, few in number, and frequently situated solely on the face and forehead. The coppery red or gray colour, again, the lesser degree of itching, and the absence of desquamation, are pathognomic of syphilitic maculæ.

\* This is one of the many instances of the loose application of the term pustular, which have been corrected by Willan and his disciples.



## VESICULAR SYPHILIS.

607. *Rupia* is not unfrequently met with as an accompaniment of secondary syphilis, and particularly when the disease has been of long duration, or when the constitution is enfeebled by the abuse of mercury, or by hygienic causes. Other forms of vesicular disease consecutive on syphilis are rare. Gibert remarks that he once saw an instance of pemphigoid syphilitic eruption, and Biett has recorded an excellent case in illustration of syphilitic eczema.

Syphilitic rupia approaches in characters somewhat to rupia prominens, but is easily distinguished from that affection by the copper-coloured hue of the areola, the thick, greenish crusts formed on the desiccation of the bulla, and the deep excavation, with perpendicular borders, and gray surface of the ulcer.

608. The vesicles of cutaneous syphilis sometimes assume the ordinary characters of herpes, at others those of eczema. They appear for the most part in successive eruptions, and are distributed irregularly upon all parts of the surface of the skin, being surrounded by a disk of redness which presents the customary copper-coloured hue of syphilitic cutaneous disease. After the lapse of a few days, the fluid contained in some of the vesicles is absorbed, while others burst, and form a thin and brownish scale, which remains adherent for some time. The spots occupied by the vesicles are marked on their decline by a discoloured stain, resembling that which succeeds to other syphilitic eruptions.

Vesicular syphilis is generally preceded or accompanied by ulceration of the mucous membrane of the fauces and pharynx, and by other symptoms of constitutional disorder.

## PUSTULAR SYPHILIS.

609. An eruption of pustules is not an unfrequent form of secondary syphilis. The general characters of this eruption are, its development at a variable period after the primary affection; its association with other indications of syphilitic disease; its appearance under the form of pustules raised upon a hardened base (tubercular pustules;) or surrounded by an inflamed areola (ecthymatous pustules;) and the termination of the eruption, either in a discoloured stain, a cicatrix, or an ulcer.

Pustular syphilis presents two principal varieties, the psudracious or tubercular pustule, and the phlyzacious or ecthymatous pustule. But between these varieties there are numerous intermediate degrees, both in respect of the severity of the eruption, and of the modifications arising out of the particular state of constitution of the patient.

(A.) *Tubercular Pustules.*

610. Tubercular pustules bear a marked similarity to acne, being developed upon hardened bases, appearing frequently on the face and forehead, and in their mildest form being unaccompanied by surrounding inflammation. They are tardy in their course, present the ordinary

colour of syphilitic eruptions, and appear in successive crops; so that, at the same visit, they may be seen at every stage of their progress to maturity. When they burst, the matter which they contain concretes and desiccates into a thin, yellowish-brown, and very adherent crust, which leaves at its fall a discoloured stain, and a small white and circular cicatrix, with a pitted centre.

611. In a more severe form of this tubercular pustule, the base is of larger size and more inflamed, and the pustule, at its apex, contains a greater quantity of pus. The scabs which succeed are consequently of larger size, and of a dark brown and blackish hue. In a patient, lately under treatment in the Middlesex Hospital, under the care of Mr. Arnott, the crusts resulting from this form of pustular syphilis were thick and very adherent, and of a dark-brown colour, approaching to black. They were scattered over the entire face, and gave to the man's aspect a singularly disagreeable character.

#### (B.) *Ecthymatous Pustules.*

612. Instead of the conical and tubercular base of the preceding variety, syphilitic pustules sometimes put on the characters of ecthyma. The pustules are of larger size, they are flattened upon the surface, and sometimes even depressed; they are scarcely raised above the level of the surrounding skin; they contain a variable quantity of a whitish-yellow pus; they have a hard and inflamed base, are scattered over the surface of the entire body, but are most numerous developed on the face and trunk. On the rupture and desiccation of the pustule, they become covered by a thin, yellowish-brown crust, and leave behind them a small cicatrix in the centre of a livid patch of a coppery hue. Sometimes several of the pustules are confluent; the crust which results is exceedingly thick and adherent, and at its fall is frequently succeeded by an ulcer of considerable extent.

613. The most common form of pustular syphilis (*ecthyma syphiliticum*) is constituted by pustules, which are larger than those of the preceding variety; they are few in number, and discreet, and in these latter characters approach still more closely in resemblance to ecthyma. They are developed, without pain or inflammation, chiefly on the limbs, and particularly on the lower extremities. They make their appearance, with very trifling pain, in the form of a livid-coloured spot, of about the size of a sixpence. Upon this spot, in the course of a few days, the epidermis is raised, by the effusion beneath it of a dusky purulent fluid, and the pustule is surrounded by a large copper-coloured and purplish areola. When the pustule bursts, its contents desiccate into a hard, round, and blackish crust, bounded by a circular groove. The crust is very closely adherent, remaining for a considerable length of time, and leaving at its fall a deep, circular ulcer, with hard, livid edges, and a grayish unhealthy surface, upon which a second crust speedily forms. The ulcer has no disposition to enlarge, and when it heals, is followed by a round and permanent cicatrix.

It is this form of pustule which is most frequently observed in infants labouring under syphilitic disease. The pustules are large, oval, flat, and superficial; they are more or less numerous, and are followed by blackish crusts, which leave unhealthy ulcerations at their fall.

Syphilitic ecthyma is distinguished from the common form of that pustular affection, by its thick, black, and adherent crusts; the boundary groove which encircles them; the deep and excavated circular ulcers by which they are succeeded; and the depressed cicatrix left by the latter. The bright, purplish-red areola of common ecthyma, again, is widely different from the dull, coppery purple of the syphilitic variety.

#### PAPULAR AND TUBERCULAR SYPHILIS.

613. The papular eruption which sometimes accompanies or succeeds to syphilis presents the general characters of lichen. It consists of small, hard, slightly prominent, conical pimples, having a coppery hue, and surrounded here and there by a purplish areola. They terminate for the most part by resolution and desquamation; in some few instances the pimples ulcerate at the points, and become covered by thin, brownish scales. The ulcerations are very rarely so extensive as to give rise to the formation of cicatrices. Syphilitic lichen presents itself in an acute and a chronic form.

In the acute form, syphilitic lichen is the occasional concomitant of gonorrhœa, and when it accompanies syphilis, is usually a primary affection. The papulæ are exceedingly numerous, covering the entire body, but especially the face, and appearing almost simultaneously. They terminate, in a few days, in resolution and desquamation, some few of the pimples occasionally ulcerating superficially. Syphilitic lichen is attended with considerable itching, but rarely with symptoms of constitutional disturbance; when these occur, they are limited to some degree of headach and feverishness, and disappear very speedily, generally with the primary symptoms which they accompany.

In the chronic variety of syphilitic lichen, the pimples are as large as the diameter of a small pea; they are flat, but little raised above the surface, indolent, of a coppery hue, but without any areola. They are frequently clustered together in considerable numbers, but are unaccompanied by itching or other symptoms, local or general. They are exceedingly tardy in their progress, commencing in the first instance by small yellowish spots, which gradually rise to the elevation of pimples, and then subside, after an uncertain duration, with equal slowness. When they have attained their complete development, they become surmounted by small thin scales, which are quickly reproduced as frequently as they fall, or are rubbed off. These papulæ are developed chiefly upon the limbs, and sometimes upon the forehead and scalp. They not unfrequently accompany other syphilitic eruptions, particularly the pustular form.

The peculiar coppery hue of syphilitic lichen, and its general distribution over the surface of the body, serve to distinguish it from the non-syphilitic form, which is usually successive in its eruption, and limited to a single region.

#### SYPHILITIC TUBERCLES.

614. When papulæ assume a large size, they are termed *tubercles*; and this form of syphilitic cutaneous disease is the most frequent of all

the affections which accompany the secondary disorder. The syphilitic tubercles present certain points of resemblance in their general characters—viz., their livid and coppery discolouration, their slow and indolent course, and their occurrence, as a common seat, upon the face, particularly on the forehead and nose; but they also exhibit considerable differences in relation to their size, their number, their form, their arrangement, their progress, and their termination, which constitute so many varieties of the affection.

615. Thus in one variety\* the tubercles are small, never exceeding the bulk of a pea; they are numerous, disposed in the form of circular rings, flattened and surmounted, each by a small, thin scale. Their usual seat is the forehead, the scalp, and neck, and they leave behind them, on their decline, a livid red stain.

When the small tubercles composing these circles are covered with scales, the affection bears some resemblance to a lepra which has healed in the centre. But the distinction between the two diseases is very strongly marked by the individuality and thinness of the scales in comparison with those of lepra, their evident connexion with distinct tubercles, and the syphilitic tint which invests the latter.

616. In a second variety the tubercles are larger, arranged in groups, or dispersed without order upon the surface of the skin; they are irregular in their form, smooth and shining in their aspect, unattended by pain, heat, or exfoliation, and rest stationary for years. When partial in their distribution, their common seat is the nose and cheeks.

617. In a third variety the tubercles are large, round, and few in number, indolent, of a violet-red colour, and surrounded by a copper-coloured areola. From time to time, one of the tubercles becomes inflamed and painful, the surrounding skin is congested, and assumes a purplish-red colour, and an ulcer is established upon the summit of the elevation. The ulcer is speedily covered by a thick dark-coloured crust. The ulcer extends deeply; other tubercles and other ulcerations form, and run their separate course, the crusts falling at short intervals, and being replaced by fresh crusts. Sometimes, by the communication of several ulcerations, an irregular ulcer of large size, and covered by a thick, greenish-black crust, results. When these ulcers occur on the face, their most frequent seat, a portion of the nose or of the lip may be destroyed by their extension.

618. In a fourth variety, the tubercles being the same in general appearance, the ulcerations which ensue, instead of increasing in depth, extend from the summit of the tubercles to the surrounding skin, in curved lines, which assume a variety of curious figures, being in one place serpentine, and in another forming segments of circles, of greater or smaller diameter. It is this variety which has been described by Alibert as the *syphilide pustuleuse serpigineuse*; the ulceration is superficial, and covered by a thick, blackish crust, and leaves, upon its healing, a white seam-like cicatrix. The whole body is sometimes covered by these ulcerations and their consequent cicatrices.

When these serpiginous ulcerations are covered with crusts, they have an appearance somewhat resembling psoriasis gyrata; or of lepra in pro-

\* Gibert terms this affection *tubercules herpetiformes*, from the resemblance which their circles bear to herpes circinnatus.

gress of cure, when its circles are broken at one or more points; but the examination of the disease at once removes all similitude. The scales of psoriasis conceal a congested and elevated surface, and not a superficial ulcer. Moreover, the colour of the syphilitic affection is pathognomic, as are the seams and cicatrices which it leaves behind.

619. In a fifth variety, the ulceration, instead of spreading to the surrounding skin in the form of a tortuous band, is confined to a narrow line, which crosses the tubercle, and cleaves it into two portions. From this linear ulceration a quantity of offensive secretion is poured out, which concretes into a blackish crust. This form of tubercle occurs upon the face, and not unfrequently upon the scrotum, and around the anus.

This tubercle, in its form and size, somewhat resembles the elevations of psoriasis guttata, which have lost their scales. But the linear ulceration and the secretion which it pours out are diagnostic of the syphilitic disease. Moreover, psoriasis guttata is rarely ever seen upon the scrotum, while it is abundantly distributed upon the rest of the body.

Tubercular eruptions are the most troublesome forms of cutaneous syphilitic disease, on account of the tendency which exists to the formation of unhealthy and rebellious ulcerations.

#### SQUAMOUS SYPHILIS.

620. Syphilitic eruptions occurring at a longer or shorter period after the primary symptoms, sometimes present the character of squamous disease. The scales are thin and grayish in their colour, and are developed on surfaces which are very slightly raised, and of a copper-coloured tint. These affections usually assume the appearance of lepra or psoriasis, they are chronic in their course, and terminate by resolution and desquamation.

#### SYPHILITIC LEPRA.

621. In syphilitic lepra, which corresponds with the lepra nigricans of Willan, the affected spots are of small size, varying from a few lines to the diameter of a shilling. They are of a dull grayish or blackish hue, darker in the centre than at the circumference, and covered by thin, grayish, brittle, slightly adherent scales. Upon their decline, the elevations look smooth and shining, and they leave behind them, at their disappearance, a livid or blackish stain, which endures for a considerable time. The whole skin frequently presents a yellowish, tawny hue, and yields a peculiarly disagreeable odour.

The eruption is developed without pain or itching, or any symptom of constitutional disorder. It lasts usually from six to eight weeks, and sometimes for a longer period.

#### SYPHILITIC PSORIASIS.

622. Sometimes the patches are of various size, and irregular in their form, presenting the ordinary appearance of psoriasis. They consist of smooth, shining, copper-coloured elevations, very slightly raised above

the surface, and covered with thin, whitish, irregular scales. The patches are in some situations isolated and discreet; in others, they communicate, forming patches of considerable extent. The intermediate skin is sallow, and more or less discoloured. This eruption is sometimes limited to a single region of the body, while at other times it is dispersed over the entire surface. Syphilitic psoriasis offers no disposition to the formation of chaps and fissures, as occurs in the sporadic disease.

More frequently the eruption consists of small roundish spots, having the general characters of psoriasis guttata, but distinguished from the sporadic form of that disease by the purplish and copper-coloured hue of the elevations upon which the thin white scales are developed. Biett considers the presence of a narrow white border of epidermis around each of these spots as pathognomic of syphilitic psoriasis.

Occasionally, syphilitic psoriasis appears in the palms of the hands and soles of the feet, but is usually conjoined with the development of the eruption in other parts of the body. In these cases, the palms or soles are covered by a scaly incrustation, consisting of dry and brittle laminæ, which conceal a surface of a violet tint, and somewhat dense in texture, but not elevated above its natural level.

The syphilitic squamous affections are not unfrequently accompanied by pustular eruptions. They are very difficult of management, and exceedingly obstinate under treatment.

623. *Treatment.*—When syphilitic eruptions put on the characters of acute inflammation, they must be treated by antiphlogistic remedies, both generally and locally. Under all circumstances, it is a point of importance to regulate the secretions at the outset of the treatment, and determine what organs are chiefly disordered. Baths are valuable agents in the cure of syphilitic cutaneous eruptions, by relieving cutaneous congestion, and by diffusing over a larger surface the cutaneous determination. For the same reason, sudorifics have obtained considerable reputation, and still continue to be employed as adjuvantia with benefit to the disease, the most approved sudorifics being guaiacum, sarsaparilla, and mezereum.

In cases where, instead of assuming an inflammatory type, the powers of the constitution are reduced below their proper level, it behoves us to have recourse to opiates, in large and repeated doses, in order to subdue the morbid irritability of the nervous system.

When the general indications presented by the particular case before us are fulfilled, we may commence the curative treatment, by prescribing some one of the numerous forms of iodine. This medicine is valuable in secondary syphilis, and is regarded, with justice, as almost specific in its effects. The formula to which I am disposed to give the preference, is the iodide of potassium, in doses of three grains, three times a-day at first, and increasing them as the symptoms may indicate.

Next to iodine, the bichloride of mercury counts the greatest number of advocates; Biett is strongly in favour of this remedy, which he prescribes according to the following formula:—

℞  
Bichloride, gr. xij.  
Opium, gr. xx.  
M.

Divide into thirty-six pills, and give one every morning, increasing the dose by degrees, and discontinuing the medicine from time to time, in case the bowels may be too much affected. By others, the medicine is preferred in solution, either with or without opium.

Compounds of iodine and mercury are also deserving of trial in obstinate cases of syphilitic eruption. A compound frequently employed on the continent is the proto-ioduret of mercury with guaiacum powder, in the form of pills. M. Gibert has lately directed the attention of the Academy of Medicine to a formula which he terms syrup of ioduretted deuto-ioduret of mercury, (*sirop de deuto-iodure-ioduré.*) The formula for this syrup is the following:—

℞	Deuto-ioduret of mercury	-	-	-	-	1 part
	Ioduret of potassium	-	-	-	-	50 „
	Water	-	-	-	-	50 „
	Dissolve, filter, and add of simple syrup	-	-	-	-	2400 „

The average dose is from four to six drachms.

M. Gibert speaks very highly of this medicine, which agrees with all kinds of subjects, adults, children, or the aged; healthy or cachectic.

Rayer extols mercurial ointment administered internally for a month or six weeks; he remarks that the absorption of the mercury is more regular and continuous when this remedy is used than when any other mercurial is employed. Whenever any affection of the gums is apparent, he diminishes the dose, or stops it for awhile, to resume as soon as the effect has passed away. The formula approved by Rayer is that of Sedillot—namely,

℞	Ung. mercurial. fort,	ʒij.
	Sapon. Castiliensis,	ʒij.
	Pulv. et mucilag. althææ,	q. s.
M.		

Make into thirty-six pills; two or three to be taken daily. It is highly probable that the oleaginous solution of mercury conveyed in this combination may offer a superiority of absorption to other compounds.

Whatever the remedy may be that is selected, its action may be increased by the administration, at the same time, of one of the sudorific decoctions above recommended.

The *local* applications hold in the first rank, emollient baths; these are useful in all varieties of the disease, but especially in the squamous affections, in which they should be rendered alkaline.

Papulæ and tubercles may be stimulated to absorption by means of an ointment of ioduret of mercury, or ioduret of sulphur; or if they be situated around the anus, or upon the scrotum, by fumigations of cinabar.

For ulcerations and abrasions of the surface, a weak nitric acid lotion, with or without opium, is the best application; or to relieve pain, the hydrocyanic acid lotion.

## CHAPTER XVII.

## HISTORY AND DESCRIPTION OF THE ITCH-ANIMALCULÆ.

## ACARUS SCABIEI.

624. A POPULAR knowledge of the existence of the itch-animalcule is probably coeval with the first development of scabies in the human race, since we find that the earliest writers mention it as possessing a popular synonym. Our dictionaries afford us similar information, and most observers have noticed the fact that a living creature is commonly extracted from the bodies of those affected by members of their own class, and by fellow-sufferers.

625. The earliest scientific information relative to the itch-animalcules that we find recorded, dates as far back as the time of Aristotle, 350 years before the Christian era. For we are informed by Monfret, in the commencement of his chapter, "De syronibus, acaribus, tineisque animalium," that ARISTOTLE was acquainted with these syrones—a statement which he precedes by a reproof to Thomas a Veiga for making an assertion to the contrary. For, says he, "Syronem antiquitate ignotum fuisse Tho. a Veiga falsò memorat, nam ipsum ακαριδιον Aristoteles vocat. (5 Histor. Animal., cap. 32.)"

626. That the itch-animalcule was well known to the GREEKS may also be inferred from the names *siro* and *acarus* by which they are designated, for, according to Mousset, both of these terms are derived from the Greek language. "Syrones item dici videntur, απο του συρδην ερπην, quia tractim sub cute repunt." And again, he observes, "το γαρ ακαρες, teste Polluce et Sinda, exiguum illum dicitur, quod ab exiguitate non possumus κειραι, id est, dividere."

627. The ARABIANS were also acquainted with the animalcule at a very early period, for we find ABINZOAR, in the twelfth century, thus speaking of them: "Syrones *Assoalat* et *Assoab* dicti, sunt pedicelli subter manuum crurumque et pedum cutem serpentes et pustulas ibidem excipientes aquâ plenas: tam parva animalcula, ut vix visu perspicaci discerni valeant."\* But Mousset expressly tells us that Abinzoar is the only one amongst the ancient authors who shows any knowledge of scabies and of the proper method of treating it, "Horum nullus antiquorum meminit præter Abinzoar qui morbum hunc vidit et curationem ejus recte instituit."

\* Mousset *Theatrum Insectorum*, p. 266.



628. By the ROMANS the itch-animalcule was named *pedicellus*; and from several quotations made by Moufet, we may learn that the Roman physicians were well acquainted with it.

SCALIGER, in his letter to Cardanus in 1557, remarks that the acarus is globular in form, and so minute as to be scarcely perceptible. The Turinians, he observes, called it *scirro*, and the Gascons, *brigant*. The little creature lives in canals which it burrows in the epidermis, and when taken out and placed upon the nail, exhibits a certain degree of movement, which is much increased by the warmth of the sun. When crushed between the nails, a slight noise is heard, and a small quantity of watery fluid is perceived.\*

GABUCINUS observes, “Ad nostra tempora quoddam supplicii genus indomita fœditate pervenit; in manibus exilis quidam pedicellus, lente minor, sub cute serpit.”

INGRASSIAS, after referring to the statement of Abinzoar, observes, “Excoriata cute ubi minimus ille jonthus varulusve, cujusdam sudaminis instar apparet, exeunt animalcula viva, tam parvuncula ut vix possint videri.”

JOBERTUS very aptly compares them with moles, but unfortunately invalidates his testimony by supposing them to be the hidden cause of porrigo, for, says he, “nascuntur sæpe in capite et pilorum radices exedunt, quos Græci τριχοβρωτους, τριχοστρωκτας, σητας, τριχοβορους, tineas peculiari nomine appellant.

ALDROVANDUS, also, in 1596, draws attention to the minute size of the *pedicello*, its resort in burrows beneath the epidermis, and its excitation of vesicles. He remarks, that we need sharp eyes and a good light in order to perceive it.

629. MOUFET, in the famous work already referred to, the “Theatrum Insectorum,” which was published, in 1634, by Sir Theodore Mayerne, after the death of its author, but was commenced during the preceding century by Wotton, Gessner, and Penn, gives the first account of the itch-animalcule published by an English writer. In this volume we find recorded a very complete description of the creature, and the most important facts with regard to its habits are accurately noted. In truth but little is known on this subject, even at the present day, that was not already pointed out by this distinguished writer. In reference to their size and form, he observes, “Syronibus nulla expressa forma (ut recte Scaliger notavit) preterquam globi: vix oculis capitur magnitudo tam pusilla, ut non atomis constare ipsum, sed unum esse ex atomis Epicurus dixerit.” In another place he remarks, “Animalculum est omnium minutissimum;” its colour, “est albicante, capite excepto; proprius intuenti nigricat, vel nigro parum rubet;” and it moves briskly when liberated from confinement, and stimulated by light and warmth. “Extractus acu et super ungue positus, movet se, si solis etiam calore adjuvetur.” He remarks upon the burrowing habits of the creature, and upon the situation in which it is usually found, “Ita sub cute habitat, ut *actis cuniculis* prurimum maximum loco ingeneret;” and again, “Mirum est quomodo tam pusilla bestiola nullis quasi pedibus incedens, tam longos sub cuticulâ sulcos peragat. Hoc obiter est observandum, syrones istos non in ipsis pustulis sed prope habitare.” He, moreover, rebuts the notion of their being allied to pediculi, and defends Aristotle against such an insinuation. “Neque syrones isti

\* Exercitatio 194; de Subtilibus; num. 7, 1557.

sunt de pediculorum genere ut Johannes Langius ex Aristotele videtur asserere: nam illi extra cutem vivunt, hi vero non: neque revera Aristoteles ullo quod sciam scripto inter pediculos acaros numeravit." His inference respecting their origin, drawn from their habitation, savours rather of the times than of the truth. "Illorum quippe proprium est non longe residere ab humore aqueo in vesiculâ vel pustulâ collecto: quo absumpto, vel exsiccato, brevi omnes intereunt. Unde colligimus, quemadmodum ex sero putrefacto exoriantur, sic eodem vicissim sustentantur." Mofet falls into the pardonable error, since repeated by several modern authors, especially by Linnæus, of confounding the *acarus scabiei* with the *acarus domesticus*. Thus, he remarks that the syrones are produced in decayed cheese and wax, and when found in these substances, as well as in leaves and dried wood, they are termed *mites*, "sed in homine *wheale wormes* dicuntur, et Germanice *Seuren*."

630. In the year 1654, AUGUSTUS HAUPTMANN, a German physician, published a work on baths,\* in which he speaks of the Acari or Sirones which he found in persons affected with scabies. These, he says, are in German called "Reitliesen;" they have six legs, and in appearance they resemble the mites of old cheese. To Hauptmann belongs the credit of giving the first figure of the animalcule; which is referred to by Bonanni, both in his own work and in his edition of Kircherius, in the following terms: "Monstrosam eorum figuram cum permultis et oblongis post tergum caudis depinget."

HÄFFENREFFER, in 1660, also a German physician, alludes to the *acarus* as a species of *pediculus* of very minute size, breeding between the epidermis and the dermis.†

631. In 1682, a short notice of the animalcule, attributed to ETMULLER, is given in the first volume of the "Acta Eruditorum Lipsiæ."‡ In this account reference is made to Scaliger's observation of its globular form, and to the opinion entertained by Rohault§ of its back being covered with scales: "Dorsum sit squamosum seu squamis coopertum." The author gives the following description of them: "Colore sunt albicante et pedibus exceptis, qui proprius intuenti nigricare videntur, pedibus sex instructi sunt, binis utrinque mox juxta caput positis, quibus talparum ritu canaliculos sub cuticulâ agere, ut oblongos non raro, quasi sulcos, trahere, simulque molestissimum pruritus excitare videntur." The paper is illustrated with three figures, drawn with an object-glass of low power; they are somewhat coarsely executed, but afford a tolerably fair representation of the general characters of the animalcule.

632. During the following year—namely, in 1683, Giovanni Cosimo Bonomo published his letter to Redi,|| which was translated into Latin by Lanzoni,¶ in 1692. An abstract of this letter was read before the Royal Society by Dr. Mead, and published in the Philosophical Transactions\*\* for 1702. Bonomo gives a more perfect account of the *acarus*

\* Uralten Wolkensteinischen Warmen Bad und Wasser schatze, 8vo. Dresden.

† Nosodochium cutis affectus. Ulmæ, 1660.

‡ For September, 1682, p. 317.

§ Tract. Physic., par. i., cap. 21, 1798.

|| Osservazioni intorno a pelicelli del corpo umano del G. Cos. Bonomo, in una lettera al Fr. Redi.

¶ Observationes circa humani Corporis Teredinem. In Miscell. Natur. Curios. for 1692.

\*\* Philosophical Transactions, vol. xxiii. p. 1296, pl. 283.

scabiei than had hitherto been made public. His attention was first drawn to the subject by meeting with the popular name of the itch-animalcule in his *Vocabulario dell' Accademia della Crusca*, followed by the accompanying explanation:—" *Pillicello i un piccolissimo Bacolino, il quale si genera a Rognosi in pelle e rodendo cagiona un' acutissimo pizzicore.*" He then betook himself to researches with the view of determining the truth of this definition, in which he was aided by his friend Hyacintho Cestonio, who informed him that he had seen " *mulierculas propriis e scabiosis filiolis acûs extremitate, nescio quid educere, quod in læve manûs pollicis ungue, alterius manûs pollicis ungue compressum, in ipsa compressione aliquem parvum sonum facere videtur, hoc autem educi a minutioribus tuberculis scabiosis, perfecta nondum sanie scatentibus, vel ut vocitant immaturis; mutua quod itidem charitate inter remiges et mancipia Balnei Liburnensis, si scabies infestaret fieri, adnotavit.*" Having obtained one of the animalcules, Bonomo examined it with the microscope, and, "found it to be a very minute living creature, in shape resembling a tortoise, of a whitish colour, a little dark upon the back, with some thin and long hairs, of nimble motion, with six feet, a sharp head, with two little horns at the end of the snout."\*

Bonomo gives two rude figures of the animalcule, which are inferior to those in the " *Acta Eruditorum,*" and must have been observed with a bad microscope. He also delineates its "very small and scarcely visible white egg," and stands alone in this observation. Two remarks in Bonomo's letter are especially deserving of attention; the first is, his comparison of the *siro* with a little bladder of water; and the second, his observation relative to their habitation in vesicles, "immaturis;" both of which are invaluable as aids in seeking for the animalcule.

633. MORGAGNI, in his 55th Letter, book 4, contributes his evidence to the existence of the itch-animalcule, and records a case in which he saw the creature himself.

634. In 1691, PHILLIP BONANNI, in his " *Observationes circa viventia quæ in rebus non viventibus reperiuntur,*" as well as in his edition of the " *Rerum Naturalium*" of Kircherius, refers to the opinions of Bochartus, Kircherius, and Borellus. KIRCHERIUS found these minute creatures, " *candidi puncti similitudinem,*" when examined with the microscope, to be " *animalia pilosa et prorsus urso similia.*" BORELLUS, he observes, " *histrici similia facit;*" but this author, I am inclined to think, describes the *acarus domesticus*, and not the *acarus scabiei*; although he was evidently acquainted with the latter, since, in his " *Historiarum et Observationum Medico Physicarum,*" under the title of " *Ulcera Pediculosa,*"† he records an instance of vesicular affection apparently identical with scabies. Bonanni gives four figures of the animalcule, one from Bonomo's letter, two from the *Acta Eruditorum*, and one of his own. Concerning the latter he observes, " *insectum hexapode, quod motu erat pigrum, colore livido, et raris setosis villosum.*"‡ In size, it was about equal to a grain of sand; and he concludes his description with the following question:—" *Unde nam istos animatorum semiatomos erupisse judicabimus?*" From the examination of his figure, which is of large size, and exceedingly rude, and from his statement that four of the little

\* Philosophical Transactions, abridged, vol. v., p. 199.

† Obs. 20.

‡ Fig. 114.

animals were sent to him by Baldigianus, a professor of mathematics in Rome, and who had extracted them from the face of one of his scholars, I am disposed to regard them as minute pediculi, and not acari. Bonanni recopies the four figures in Kircherius.\*

535. In 1744,† BAKER, in a curious work, entitled the “Microscope made easy,” for the perusal of a copy of which I am indebted to my kind friend Dr. Grant, remarks—“The microscope has discovered what, without it, could scarcely have been imagined, that the distemper we call the itch is owing to little insects under the cuticula, whose continual bitings cause an oozing of serum from the cutis, and produce those pustules and watery bladders whereby this disease is known.” He then quotes the description of the animalcule, and the mode of finding and extracting it, given by Bonomo, and copies the two figures of this author, not forgetting the ovum.

636. In 1762, CASAL, a Spanish physician, in a work, entitled “Medical Researches on the Asturias,” referring to the burrowing and grubbing habits of the acari, remarks, “Vocantur aratores, et merito, arant enim semper inter cuticulum et cutem.”

637. In 1786, DR. WICHMANN, of Hanover, was induced to verify the prevailing opinion of the existence of an animalcule in connexion with scabies, and the results of his labours are published in a volume entitled “*Ætiologie der Kraetze*.”‡ He found the zoological characters of the animacule undecided, and the precise species infesting the skin in scabies undetermined. “Thus,” he remarks, “of many naturalists, to name only a few of rank, Linnæus has only *tentacula*; Schæffer has *antennæ pediformes articulatæ*; while Baron de Geer expressly says, they have no antennæ, but two arms, with joints, which resemble those of spiders, who have likewise no antennæ.” He alludes also to the opinion of Linnæus, that the acari farinæ might be conveyed in the powder used in dressing children to their skins, and there colonized, and he attributes to this error on the part of the great naturalist the assertion made by Professor Murray,§ “that previous to any appearance of pustules, (in scabies,) there is always a foulness of the juices, and that when this foulness has got a certain height, the acari of cheese or meal are induced to seek a nidus in the skin.” Dr. Wichmann refers also to the omission of distinction of species by Pallas,|| for that author remarks, “*Acarus scabiei, acaro farinæ est consanguineus*.” De Geer, however, distinguishes the two species very accurately, for of the acarus farinæ he observes, “*Acarus oblongus albus, capite rufescente, pedibus conicis crassioribus æqualibus*;” and of the acarus scabiei, “*Acarus subrotundus albus, pedibus rufescentibus brevibus; posticis quatuor seta longissima, plantis quatuor anticis fistulatis capitulo terminatis*.” The author points out the vesicles as the seat of habitation of the animalcule, but he observes, that “even before such a transparent vesicle is formed, we may often discover traces of the insect on the fingers or hands, in a reddish streak or furrow,” and “it is even more usual to find it in these furrows than in the pustules themselves. The furrows he finds only in the hands and fingers. Dr. Wichmann gives two figures of it,

\* Fig. 95.

† This is the date of the third edition.

‡ 8vo, 1786; and London Medical Journal, vol. ix., 1768, p. 28.

§ De vermibus in Leprâ obviis. Gottingen, 1769, p. 9.

|| Dissertatio de infestis viventibus, 1760, p. 2.

as examined with an object-glass of high power. These are very correct, and give a better idea of the little creature, as seen by that instrument, than any other delineations published. Like his predecessors, he makes no attempt to describe the zoological characters and structure of the animalcule.

638. In 1805, DR. ADAMS gives two excellent figures of the itch-animalcule in a paper\* addressed to Sir Joseph Banks, and read before the Royal Society in the month of April of that year. This paper is entitled "*An Account of the Acarus Siro, (Acarus Exulcerans of Linnæus,) by some considered as the Itch Insect.*" The figures of the acarus which accompany this paper are superior to any that have been published either before or since, and are sufficient to identify the animalcule completely with the acarus scabiei. The author's observations were made in Madeira, where, it would appear, the creature is extremely common, and is called *ouçou*, or *ouçam*. Dr. Adams gives no zoological description of the animalcule, but confines himself chiefly to the disease engendered by its presence, and to the mode of detecting the ouçou. In the latter art he was instructed by an old woman, and he confesses himself to have been a dull scholar; but the results of his researches afford no better information than that which I have already adverted to, as contained in the *Theatrum Insectorum* of Mufet. The principal seat of the animal, says Dr. Adams, is a "reddish elevation" at the end of a "somewhat knotty" reddish line, extending from the vesicles for the distance of about a quarter of an inch. The author attributes to the animalcule a "power of leaping with a force not less than a flea. Such was the case with one whilst I was examining it under a convex lens." In this he is entirely mistaken; for the creature is deficient in the organization necessary for such an effort, and its sudden disappearance from the field of his lens is rather to be ascribed to some untoward movement in the adjustment of his optical apparatus. Dr. Adams expresses himself unwilling to accord to Bonomo all the credit which that writer claims; and in reference to the discovery of the egg, he remarks—"Without suspecting the good intention of this writer, you will readily admit the uncertain discrimination of the egg of an insect, described by De Geer as about the size of a nit, but which, on placing it under a microscope, by the side of a nit, did not appear more than a fourth part of its bulk. For myself, I never could discover what could satisfactorily be called an egg."

Hitherto Dr. Adams has spoken of the ouçou as being identical with the itch-animalcule of Bonomo and other writers, but in subsequent paragraphs he declares his belief that the disease engendered by the ouçoos, and that of the itch, are perfectly distinct, and he founds this opinion upon the following data:—

1. The disease of ouçoos is attended with considerable febrile disturbance, and sometimes with severe local symptoms.

2. It is easily cured; by extracting the animalcules, by the white precipitate ointment, or by the use of sulphur internally.

3. It is liable to recur, from the development of undestroyed ova, unless the remedies be continued for a month after the apparent cure; and even then, if the disease be cured in the autumn, it is liable to return in the spring, because the animalcules remain torpid during the winter.

\* Published in his work on *Morbid Poisons*, 4to. 1807, p. 293.

4. It is always attended with vesicles which possess great uniformity, and have each a red line; whereas in itch the vesicles are variable in size.

5. The natives of Madeira entertain a disgust for the itch, which they call *sarna*; whereas the ouçoes give them no discomfort.

6. The dictionaries of all languages are opposed to the similarity of the affections, since they indicate a name for the animalcule distinct from that of the itch.

7. John Hunter could never discover the itch-animalcule.

Now all these objections, cogent as they may have appeared to the author, must instantly fall to the ground the moment that the animalcule is shown to be present in the itch, and to be the real cause of that affection. Nor would it be difficult to prove, seriatim, that each of the objections above cited is equally unfounded. The figures appended to Dr. Adams' paper are so excellent, that I am inclined to assign to them a rank superior to those of Wichmann, although the object of the two authors is widely different, and scarcely admits of comparison, for while the figures of Adams are intended to trace form and general character, in those of Wichmann there is a manifest endeavour to exhibit texture.

639. The year 1812 witnessed the performance of a most remarkable scene in the memoirs of the *acarus scabiei*. M. GALES, Pharmacien of Saint Louis, tempted by a prize offered by an unbeliever in the existence of the little animal, introduced the gentle stranger to the wondering gaze of all the *notabilities* of Paris. The Academy applauded, the crowns were paid, and the pencil of the artist of the Musée Royale was called to perpetuate the juggle. He drew to the life the common meal-mite! (*acarus farinæ*.) It is needless to say, that the statements put forth by M. Galés, were, from beginning to end, a tissue of deceptions, and to have written such stuff as that contained in his paper is the best proof that he could never have seen the animalcule. M. Patrix played pantaloons to M. Galés's clown.

640. The discovery of the treachery of M. Galés was not, however, made for a considerable number of years, when with some difficulty, Raspail succeeded in proving the identity of the insect of Galés with the *acarus farinæ*. The consequence of this exposure was universal distrust, and in this state the question remained, until a young student from Corsica, M. RENUCCI, in the year 1834, exhibited the veritable animalcule in the clinical theatre of Alibert, and demonstrated the method of discovering its lurking place in the epidermis.\*

641. The subject was next taken up by M. ALBIN GRAS, a student of St. Louis, who has shown himself well qualified for the undertaking. He published a small treatise† in the autumn of 1834, in which he gives a good summary of the knowledge of our ancestors relative to the animalcule, explains the manners and habits of the little creature, and details some excellent experiments made by himself, in reference to the mode of treatment of the disease. The habits of the *acarus*, when placed upon

\* Some account of M. Renucci's mode of procedure will be found in the *Gazette des Hopitaux*, and *Gazette Medicale* for 1834.

† *Recherches sur l'Acarus ou Sarcopte de la Gale de l'homme*. Par Albin Gras. Paris, Octobre 11, 1834.

the skin, are detailed in § 421 of this volume, and M. Gras' experiments on the influence of medicinal agents on its vitality are quoted in paragraph 423. After giving a description of the animalcule inferior to that of M. Raspail, the author remarks, "If we observe the mode of progression of the insect beneath the epidermis, we may easily assure ourselves that it does not bore its cuniculi in the manner of the mole, by means of its anterior legs,—for the legs are not disposed to enable the creature to effect its object in this manner,—but it lifts the epidermis by means of its flattened snout. The hairs upon its back aid it in this operation, for being directed posteriorly, all return on the part of the animal is rendered impossible."

"In examining several sarcoptes beneath the microscope, we frequently perceive them to lay several small, white, oblong, and transparent eggs, the eggs, according to M. Duges, being one-third the length of the animal. "If we place an acarus on the epidermis, we perceive it to dodge about here and there, following by choice the course of the folds of the skin, and every now and then fixing itself upon the epidermis, and raising the posterior part of its body."

642. In 1834, RASPAIL published his "Mémoire comparatif sur l'histoire naturelle de l'insecte de la Gale," in which he details the history of modern discovery in France relative to the itch-animalcule—a narrative replete with misadventures, that the perusal of Moutet would have effectually prevented. In 1831, he had seen and delineated the acari scabiei of the horse, but it was not until three years afterwards that he was first shown by Renucci the animalcule of the scabies of man. After describing the epidermic cuniculi which are burrowed by the creature, he observes that the precise seat of the acarus is indicated by a *white* point. His description of the animalcule is the following. It is white, scarcely half a millimeter in diameter, head and feet reddish and transparent, and it is invested by a covering which is hard, dense, and resisting. Its *abdomen* is flat and smooth; the *dorsum* presents three prominences, one, of very large size, in the middle, one, next in size, over the abdomen, and one near the head. Along the *lateral border* of the creature, the dorsal and ventral surface join like the carapax and plastrum of a tortoise, and the resemblance to the shell of this animal is increased by the projection of the head and anterior legs from the space between the carapax and plastrum in front, between which they appear capable of retraction. The *head* is provided with two large eyes, placed laterally; it is surmounted by four antennæ, which are disposed in two rows, between the eyes; the trunk is folded beneath the head. The *anterior legs* have four joints, and a haunch-piece at the base of each; they are terminated by a stiff ambulacrum, furnished at its extremity with a sucker. The *posterior legs* have the same number of pieces as the anterior, but are not more than one-fourth their length, and scarcely project beyond the abdomen. Each leg is terminated by a long hair in place of an ambulacrum. The *anus* projects, more or less, from the posterior border of the carapax, and is bounded by two short parallel hairs on each side. The carapax and plastrum are horny in texture; the former is surmounted by stiff horny hairs, disposed in a certain order, two rows passing backwards from the centre to each side of the anus, and two forwards to each side of the head. The structure of the carapax is reticular, the meshes extending transversely.

The figures accompanying this excellent description of the animal do great injustice to the text; they are inferior to those of Adams, and also to those of Wichmann, neither of which appear to be known to the author; while he praises very highly the figures of De Geer, which are inferior to both.

643. Besides the authors above referred to, some account of the *acarus scabiei* will be found in *Schenkius*, Obs. 676; in *Rosenstein*, on the diseases of children; *Pallas*, de infestis viventibus, 1760; *Sauvages*, Maladies de la Peau; *Miscellanea Curiosa*, 1692; *Annales des Sciences d'Observation*, vol. ii. p. 446, vol. iii. p. 298, 1830; *Lancette Francaise*, Août, 1831; *Bulletin de Therapeutique*, vol. vii.; *Journal des Connaissances Medicales*, Septembre 15, 1834. And for the comparative history of the animalcule, *Walz*, de la Gale de Mouton.

644. LINNÆUS, from an imperfect acquaintance with the *acarus scabiei*, has been the cause of much of the confusion and obscurity which have involved the history of this animalcule. He places *acarus* in his order *aptera*, and gives the following as the characters of the genus:\*—

*Os* proboscide carens, haustello vaginâ bivalvi, cylindricâ, palpis duobus compressis, æqualibus, haustelli longitudine.

*Oculi* duo ad latera capitis.

*Pedes* octo.

*Tentacula* duo, articulata, pediformia.†

In the first edition of the *Fauna Suecica*,‡ Linnæus describes the animalcule under the specific designation of "*acarus humanus subcutaneus*." In the second edition§ he considers the *acarus humanus subcutaneus* as belonging to the same species with the flour-mite, cheese-mite, &c.; and in the "*Systema Naturæ*" observes, "Inter sirones Farinæ, Scabiei, Phthiseos, Hemitritæi, vix etiamnum repereri alias differentias quam a loco petitas;" while he admits the itch-animalcule as a new species, under the name of "*acarus exulcerans*." The specific characters of these two species he thus indicates:||—

"*Acarus siro*.—A. lateribus sublobatis, pedibus quatuor posticis longissimis, femoribus capiteque ferrugineis; abdomine setoso.

"β. *A. humanus subcutaneus*.

"Habitat sub cute hominis scabiem caussans ubi vesiculam, excitavit, parum recedit corporis rugis secutus, quiescit iterum et titillationem excitat; nudis oculis sub cuticulâ delitescens observatur ab adsueto acu facile eximitur, ungui impositus vix movetur, si vero oris calido halitu affletur agilis in ungue cursitat.

"*Descriptio*.—Minimus, magnitudine vix lendis subrotundus, capite vix conspicuo, ore ut et pedibus ruffis sive testaceis; abdomen ovatum hyalinum; in dorso duplici linea lunari seu pari linearum fuscarum recurvatarum notatum et quasi lobo utrinque.

\* *Systema Naturæ*, 1767.

† *Entomologia Faunæ Suecicæ*. Viller's Edition, 1789.

‡ No. 1194.

§ Anno 1761. No. 1979.

|| *Fauna Suecica*. Editio altera, auctior, 1761, Nos. 1975, 1976.



“*Acarus exulcerans*.—A. pedibus longissimis setaceis; anticis duobus brevibus.

“Habitat in scabie ferinâ, cujus caussa est.”

In the “*Entomologia Faunæ Suecicæ*” of Linnæus, edited by Villers,\* the editor retains the above “*Descriptio*” in connexion with *acarus siro*, but the “Habitat” he transfers to *acarus exulcerans*, commencing it thus—“Habitat in scabie ferinâ, sub cute hominis,” &c. To this he adds the observation of Fabricius—“*Acaro sirone minor et distinctus et forte acaro exulcerante non diversus.*” Then follows the “*Descriptio.*” *A. albus, diaphanus; corpus rotundatum, scabrum, nigro non lineatum uti acarus siro.*” The editor concludes with two remarks from his own pen:—“*Obs. 1. In Fauna Suecica, ed. 1, acarum farinæ et scabiei sepe raverat Linnæus, postea conjunxit, sed DD. Geoff., Fab., De Geer, pro diversis speciebus ritè habuerunt; ergo verè distincti.*—*Obs. 2. Scabie certe hic acarus caussa est.*”

In the 13th edition† of the “*Systema Naturæ*,” the *acarus siro*, comprising the meal-mite, the cheese-mite, &c., is separated from *acarus scabiei*, but the *acarus exulcerans* is still retained. The specific characters of the *acarus scabiei* are thus stated:—

“*Acarus scabiei*.—A. albus, pedibus rufescentibus; posterioribus quatuor seta longissima.

“*Habitat in ulceribus scabiosorum, cutis rugas sequendo penetrans, titillationem excitans; utrum causa, an potius, symptoma mali? Sirone multo minor.*”

Of the *acarus exulcerans*, Linnæus remarks—

“Habitat in ulceribus scabie ferinâ laborantium. An satis distinctus ab *A. scabiei*?”

In the “*Amœnitates Academicæ*”‡ the following passages, which are deserving of notice, occur. The first conveys the best idea of the seat and appearance beneath the cuticle of the *acarus* that I have met with in any writer; and the latter puts forth the unfortunate observation, which led Linnæus so deeply into error with regard to the classification of the itch-animalcule. Speaking of the vesicles, the writer observes—“*Parum vero ab illa in ruga cutis punctum quoddam fuscum quod nondum in vesiculam se extulit, fit tamen duobus diebus progressis; acûs aculeo lens minima eximitur, quæ ungui imposita et halitu oris afflata, in ungue cur-sitat. Oculis armatis ulterius appareat insectum hoc octo habere pedes, setas quasdam in dorso et acarum esse jam allatum.*” “*Si mater aut nutrix infantem farina cereali, in qua acari sæpissime habitant, adperserit, infans in ea parte primo et toto tandem corpore scabie laboravit.*”

In Sweden, Linnæus remarks that the itch-animalcule is named *Klamask*.

SCHAEFFER also describes the animalcule in his “*Elementa Entomologiæ*,” in 1766.

645. BARON DE GEER was thoroughly well acquainted with the itch-animalcule, and has left an admirable description§ of the creature, as well

\* Anno 1789.

† Edited by Gmelin, anno 1788. Vol. 5.

‡ *Miracula Insectorum*. By G. E. Avelin. Upsal, 1752. *Amœnitat. Acad.*, vol. iii., p. 333.

§ *Mémoire pour servir à l'histoire des insectes*. Vol. vii., 1778, p. 94, pl. 5. figs. 12—14.

as two excellent figures. The latter, however, are not equal to the description. He points out the error of Linnæus, with regard to classification, and expresses his conviction of the identity of the *acarus scabiei* and *exulcerans*. The specific characters of the *acarus scabiei* he describes as follows:—

“*Acarus subrotundus albus, pedibus refescentibus brevibus; posticis quatuor seta longissima, plantis quatuor anticis fistulatis capitulo terminatis.*”

The capitulum in this definition he speaks of as being “en forme de vessie;” and in reference to scabies he observes—“Ces mittes sont meme l’unique cause de sette vilaine maladie.”

646. FABRICIUS,\* in his “*systema Entomologicae*,” places the *acarus* in the order *antliata*, which he characterizes as possessing “os, haustello, sine proboscide.” The characters of the genus he thus designates:—

“*Acarus*.—Haustellum, vagina bivalvi, cylindrica; palpi duo longitudine haustelli.” To which, in the amended edition of 1794, he adds—“*antennæ filiformes.*”

With regard to specific characters, Fabricius adopts the definitions of Linnæus, and admits two species as inhabiting the skin of man—namely, the *acarus siro* and the *acarus exulcerans*. Of the former he remarks:—

“Habitat in caseo, farinâ diutius asservatis, cutem hominis rugas secutus penetrat, vesiculam et titillationem excitat. Caussam, nec symptoma morbi esse evincunt observata analogia cum Gallis contagium cura.”

And of the latter:—

“Habitat in scabie ferinâ.”

In the “*Fauna Grœlandica*,”† the same author observes, with regard to the *acarus siro*:—

“Habitat in vesiculâ scabiei Grœnlandorum, qui illum acu apte eximere scientes, mihi miranti, ut vivum animal incedentem ostenderunt. En Grœnlandos Entomologos.” “Varietatem farinæ quidem etiam in farina mea vidi: an vero in Grœnlandia domi habeat, incertus sum dum Grœnlandi farinaceis non utuntur.” He remarks also, that in Greenland the animalcule is named “*Okok*,” and that in the natural history of Bomares, it is termed “*Scab-orm*.”

In the “*Entomologia Systemica, emendata*,”‡ Fabricius adopts the opinion of De Geer with regard to the identity of the *acarus siro* with the *acarus domesticus*, or cheese and meal mite, and admits the itch-animalcule as a distinct species, with the following characters:—

“*Acarus scabicei*.—Albus, pedibus rufescentibus, posticis quatuor longissima.”

It is, he continues, “multo minor et distinctus ab acaro sirone.” He observes also that this species corresponds with the *acarus exulcerans*, and quotes a passage from Linnæus to the same effect.

647. MULLER, in his “*Prodromus Zoologiæ Danicæ*,”§ adopts the early classification of Linnæus, considering the itch-animalcule under the designation of *acarus siro*. In Denmark, he observes, the creature is called, *Krid-orm*, *Ring-orm*, and *Meel-mid*. The latter term, which, translated,

\* Johannes Christ. Fabricius. Ed. 1775, p. 813.

† Anno 1780, p. 221.

‡ Anno 1794, vol. iv.

§ Otho Fridericus Müller. Anno 1776.

would be *meal-mite* indicates the popular extension, or possibly the popular origin, of the error of the great Swedish naturalist.

648. LATREILLE established the itch-animalcule as a new genus under the name of *Sarcoptes hominis*, with the following description:—Body apterous; no distinction of head or segments; manducating organ prominent, without apparent palpi; eight short legs. Subsequently, however, on the occasion of the memorable juggle of Galés, Latreille omitted the genus altogether.

649. The existence of the *acarus scabiei* is without question; I have extracted as many as twenty from their retreat at a single sitting. I have placed them on a slide of glass, and seen them run; and after the business of the day has been over, I have examined them with the microscope, and found them still active, living for several hours after my examination. I have already stated, that I regard them as the unique cause of scabies, and as a necessary feature in the diagnosis of that disease.

When examined with the naked eye, the *acarus* looks white and shining, globular in its form, and very aptly resembling the little bladder of water of Bonomo. There is no difficulty in extracting the little animal; the cuniculus is seen without difficulty; the end of the cuniculus is perceived to be a little raised, while a grayish speck is seen beneath it. As soon as this little eminence of epidermis is lifted, if the end of the needle or pin with which the operation is performed be examined, the minute, white, and shining globe will probably be observed attached to the instrument. If there be no such object, the point of the needle placed again beneath the raised capsule of epidermis will pretty certainly draw it forth. This facility of extracting the little creature is due, in great measure, to its power of clinging, by means of a special apparatus which the animal possesses.

When the *acarus* is seen running upon the surface of a plate of glass, it may be perceived that its anterior margin presents a dusky tint of colour, and the examination of this part of the creature with the microscope brings into view a head not unlike that of a tortoise, and a pair of large and strong legs on each side of the head. These organs are encased in a moderately thick layer of chytine, and have consequently the reddish-brown tint of the cases of certain insects, or of the bright part of a thin layer of tortoise-shell. Proceeding with our examination, we perceive the general outline of the animal to be subrotund, the antero-posterior predominating very little over the transverse diameter; the anterior part of the creature being broad, and the posterior somewhat narrower and semicircular. The ventral surface of the *acarus* is flat, and occupied by the head and eight legs; the dorsal surface is arched and irregular, and covered by numerous spines; and projecting backwards from the posterior segment of the animal are ten hairs, some long and others short.

650. With the view of determining the size of the *acarus*, I measured ten specimens, and found them to vary between  $\frac{1}{147}$  and  $\frac{1}{77}$  in length, and between  $\frac{1}{303}$  and  $\frac{1}{94}$  in breadth. The following were the measurements of seven of this number:—

<i>Length.</i>	<i>Breadth.</i>	<i>Length.</i>	<i>Breadth.</i>
$\frac{1}{147}$	$\frac{1}{192}$	$\frac{1}{88}$	$\frac{1}{109}$
$\frac{1}{128}$	$\frac{1}{303}$	$\frac{1}{77}$	$\frac{1}{106}$
$\frac{1}{119}$	$\frac{1}{147}$	$\frac{1}{77}$	$\frac{1}{94}$
$\frac{1}{94}$	$\frac{1}{143}$		

651. Examined with a quarter or eighth of an inch object-glass, or with Powell's new half-inch, the case of the body of the acarus is seen to be composed of narrow plates, variously disposed with regard to the axis of the animal, but chiefly transversely, and resembling a coat of plate armour. The connecting membrane of these plates permits of a certain degree of movement between them. The *dorsum* of the creature is convex, but irregular in surface, and exhibits upon its borders a tendency to division into a thoracic and an abdominal segment, the former being somewhat broader than the latter. Anteriorly the dorsal case terminates in a sharp border, which is scolloped, and forms a jutting roof of protection to the head, and to each of the four anterior legs. Posteriorly, the case is somewhat deeply cleft, forming a groove, which corresponds on the ventral surface with the sexual and anal aperture.

The dorsal surface of the creature is covered with tubercles, spines, and hair-bearing tubercles, regularly, and very remarkably disposed. The *venter* of the acarus is flat, and the abdominal portion slightly convex. The posterior part of the latter is grooved upon the middle line, and furnished with an anal and sexual aperture, of considerable size.

The *head* is an oblong cylinder, more or less obtusely pointed in front, flattened beneath, enlarging slightly laterally towards the body of the creature, and implanted by its posterior end into the angular interval left by the separation of the anterior pair of legs. The lateral enlargement towards the root of the head is the most suitable place for eyes; but I have not as yet been able to detect those organs. The head is surmounted by two rows of stiff hairs. The mouth is an oblong aperture situated upon the under surface of the head, and narrowing towards the root of the latter. Its borders are furnished with a thick fringe of stiff hairs, and the interior supplied at each side with a number of strong mandibles. The head is capable of elongation or retraction beneath the dorsal plate or carapax.

The *legs* are eight in number, four being anterior and four posterior; the anterior legs are large and powerful, the posterior small. The anterior pair of legs are so large, so closely placed to the head, and directed so immediately forwards, as to deserve the appellation of arms. The next pair follow immediately on the preceding, but are directed outwards. The legs are conical in form, tapering, when extended, to an obtuse point, and composed of a hip-piece and three circular segments. The hip-pieces of the two anterior legs join at an obtuse angle, and form the limit of the root of the head. The point of meeting of these hip-pieces is the commencement of a sternal crest, which runs backwards on the plastrum for a short distance, and terminates by a rounded extremity. A similar crest is formed on each side by the junction of the hip-pieces of the anterior

and lateral legs, the crest being directed backwards and inwards towards the termination of the sternal crest. Each of the annular segments of the anterior legs is furnished with three or four bristly hairs, which stand out at right angles from the segment. Moreover, the extremity of each anterior leg is provided with a tubular cylinder as long as the entire leg, and terminated at its extremity by a globular vesicle, which performs the office of a sucker.

The head and four anterior legs are covered by a strong case of chytine, which presents the ordinary colour of insect cases—namely, a brownish red. The plastrum is slightly tinted with a similar hue, but the three crests formed by the hip-pieces are, in virtue of their thickness, of a deep colour. These are the red lines of Gras, Raspail, and others. The posterior legs have but a thin case of chytine, and are less deeply coloured. The coloured covering of the head and legs contrasts very strongly with the yellowish white of the body of the animal.

The posterior legs spring from the posterior part of the thoracic segment of the animal, two on each side; they are conical in form, composed of three segments, and each leg is connected to the body by means of a triangular and flattened thigh-piece. Each posterior leg is terminated by a long membranous hair-like organ, which is directed backwards.

I have already alluded to the cleft on the posterior part of the abdominal segment of the animal, and the papilla which bounds the anal opening posteriorly. A pair of hairs surmounted on short tubercles are found on each side of this opening, near the posterior margin of the abdomen. These four hairs, with the four hair-like organs of the posterior legs, and two hairs directed backwards from the lateral part of the thoracic segment, form the ten hairs which are observed along the posterior margin of the animal. These hairs, together with the hairs, spines, and tubercles situated on the dorsum, serve most effectually to prevent the retrogression of the acarus along its cuniculus, while the anterior part of the creature is equally well organized for advance.

I have not been able to distinguish any sexual differences between the animals I have examined. In a sketch before me is drawn a conical projection in this region, but I have not as yet seen that appearance repeated.

The ova I have seen, and have preserved a slide, on which there are two of these bodies.

The internal organization of the animalcule is obscured by the large collection of adipose cells which form its superficial stratum.

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## HISTORY AND DESCRIPTION OF THE ACARUS FOLLICULORUM.

652. IN the course of some researches directed to the investigation of the cause of acne, Dr. Gustav Simon, of Berlin, had the good fortune to

discover an animalcule in the sebaceous substance with which the hair-follicles are so commonly filled, particularly on the face, and to this creature he has given the designation, *acarus folliculorum*.\* Dr. Simon's researches have hitherto been directed principally to the sebaceous glands of the nose, where he finds the parasite with astonishing frequency, even in cases where the skin presents all the characters of perfect health. Of living persons he detected the acarus in three out of ten men in the sebaceous matter squeezed out by pressure from the follicles; but in the dead he discovers them in almost every individual examined, the only exceptions out of ten bodies being two newly-born children. The mode of examination in the case of the dead was by means of thin sections. The acari embedded in the sebaceous matter are found in the hair-follicles near to the outlet, their long axis corresponding with that of the follicle, and their heads being directed inwards; in four instances the head and part of the body of the little creature were lodged in a sebaceous duct. In normal hair-follicles there are usually not more than one or two of these parasites; in rare instances, three or four; but where the sebaceous substance is concreted, their number varies from two to six; in one case he found as many as eleven, and in another, thirteen. They are tardy in their movements, but retain their vitality for a considerable length of time; thus Dr. Simon has found them moving after a confinement of eight and twelve hours between two plates of glass, and in one body they were found alive after the person had been dead for six days.

The *acarus folliculorum* presents several forms, which correspond with stages of development. In the most common form the animal varies from 0,085 to 0,125 of a line (German) in length, and 0,020 of a line (German) in breadth; it has an elongated figure, a long thoracic portion, with four pairs of legs, and an abdomen three times as long as the thorax, and tapering gradually to an obtusely pointed extremity. The head consists of two large palpi, and of a proboscis situated between the two. The *palpi* are bi-jointed, and terminated by several small teeth-like processes. The *proboscis*, which is capable of elongation and retraction, resembles a long tube, upon which lies a triangular organ, having its narrow base directed towards the root of the former, and extending by its apex almost to the extremity of the proboscis. This triangular body consists of two bristles lying side by side. The *head* is continuous directly with the thorax, without any precise line of demarcation. The *legs* are short, conical, and composed of three segments, and upon the latter is an appearance of plaits. The leg is terminated by three claws, one long, and the other two short. From the anterior part of the basis of each leg a double line runs transversely inwards across the under surface of the thorax, towards the middle, where one of the lines passes forwards and the other backwards, and they serve together to form a central longitudinal double line. The transverse lines are probably continued completely around the thorax. The thorax is highest at about the middle, and broadest at the point corresponding with the second pair of legs. The *abdomen* is marked by a number of transverse lines produced by a series of grooves or contractions, which give to the margin of this part a resemblance to a file. The contents of the abdomen are granular, and similar to those of pigment cells,

\* Müller's Archiv., 1842, p. 218. Ueber eine in den kranken und normalen Haarsäcken des Menschen lebende Milbe.

and among these granules are several large transparent places of a round, oval, and sometimes quadrate form, like globules of oil. The tail is free from granules.

A second form was remarkable from having the abdomen once only, or one and a half times longer than the thorax. The abdomen is more or less obtusely pointed posteriorly, and marked by the characteristic transverse lines.

In a third form the abdomen is very short and acutely pointed. The thorax is broad, and there are no transverse lines on the abdomen.

In a fourth form, the whole animal is remarkable for its slender figure; the abdomen is very long; there are only three pairs of legs, no transverse lines on the abdomen, and its granular contents are much more lightly tinted.

653. To what part of the animal kingdom does the parasite belong? asks Dr. Simon, and this question he refers to an eminent entomologist of Berlin, who returns him the following answer:—

The animal is clearly not an Helminthus, but its entire organization, and especially the great distinctness of its different pairs of legs, betoken it to belong to the great division, Insecta, of Linnæus. Of this extensive group, the parasite before us appertains to the class Arachnida, for there is no separation between the head and the thorax, there are no antennæ, and it has four pairs of legs; and judging from the form of its mouth, it should belong to the order Acarus. The proboscis is the under lip lengthened out, a form which this organ assumes in all mites. The two bristles lying on the proboscis are the mandibles, and the pair of two-jointed organs lying by the side of the proboscis are the maxillary palpi. The different forms in which the creature has been seen are stages of development. In the early state of the mite, the presence of three pairs of legs is a common character. The lengthened form here principally described is the second stage of development, and those with shorter abdominal segments represent later periods. It is therefore probable, that in the fully developed stage the abdomen is lost altogether, and we are inclined to believe that this last stage is not as yet known to observers. The distinctions of genus and sex are, consequently, not yet practicable.

In general, such a metamorphosis as the one here described does not occur in the mite, for these creatures retain the form, even although an additional pair of legs have to be developed, which they possessed on first breaking from the egg. But, on the other hand, Hartig has observed and described in the mite of the pine-gall (*Oribata geniculata*, Latreille,) a metamorphosis precisely analogous to that of the animalcule before us.

These animalcules cannot be metamorphosed into parasitic mites, for the itch-mite and mange-mite have distinctly segmented legs with joint-lobes (Heftläppchen,) and no metamorphosis, since they issue from the egg already provided with four pairs of legs. Earlier, some relationship might have been inferred between this animalcule and the bird-mite (*Dermanyssus*), which, in its young state, has only six legs; but the worm-like form of our animalcule in its early stages, and the remarkable shortness of its legs, render comparison between them impossible.

The animal found by Donnè in the mucus of the vagina (*Tricomonas vaginalis*), which this observer considers to belong to the Infusoria, and, according to others, is more nearly related to Acarus, differs in many points, according to Donnè's description and figure, from the acarus of

the hair-follicles. For instance, it is often not more than double the size of a blood corpuscle, and at most  $\frac{1}{100}$  of a line long, it has a round or elliptic shaped body, with a whip-like appendage in front, and along one of its sides several fine fibres.

Again, as the animalcule of the hair-follicles has not yet, as we conjecture, been seen in its perfect shape, it is possible, although little probable, that this last stage of development may correspond with some already known mite. In no case, however, could the animalcule, for the before-mentioned reasons, become one of the ordinary parasites of the human skin; but this creature must present the remarkable peculiarity of living within the human body in its young state, and, in its perfect state, of living external to it. Farther researches may serve to establish this question; in the mean time, however, I will designate this animal, from its habitat in the hair-follicles, *acurus folliculorum*.

654. About six times have I seen, both in the comedones of living persons and in the hair-follicles of the dead, a heart-shaped body, having a small process projecting from its broader end. This body was somewhat longer than the breadth of the acarus, of a brownish colour, and appeared to be filled with a granular substance. In the hair-follicles, it was always close to the animalcule, but not connected with the latter. This observation, with the fact of the non-resemblance of the heart-shaped body with any known human structure, gives strength to the conjecture that it must bear some relation to the acarus. It might, for example, be an egg-shell, out of which an embryo has escaped.

In reference to the movements of the creature, I have been able to make the following observations:—The palpi are capable of being moved in different directions, of being drawn in, and stretched out. The latter movements are remarked also in the proboscis, which is sometimes thrust beyond the palpi, and sometimes drawn back. The legs can also be moved in various directions, and the creature is often seen to move them backwards and forwards like to a pendulum; they can also be retracted or stretched forth. The thorax and body admit of being curved. Although the creature makes all these movements, it does not walk, but merely changes its position from side to side; once, indeed, I saw an acarus walk a distance equal to his own length, but then it was along a hair, which he closely grasped.

Dr. Simon remarks, that he saw the first and second described forms most frequently, and the third and fourth forms—namely, that with the short and pointed abdomen, and the slender animal with three pairs of legs, only rarely; the former in the proportion of ten per cent., and the latter of six per cent. But he feels so convinced of the accuracy of his observation, that he regards as the most positive of his data, the presence of six legs only in some.

655. After perusing the account of the acarus folliculorum, as given by its discoverer, Dr. Simon, I determined to proceed to a verification of his discoveries, and being provided with an instrument probably superior to that employed by Dr. Simon, I have succeeded in making out certain points of structure that had escaped his observation.

I was not long in obtaining subjects: almost every face that I met supplied me with abundance, and the difficulty seems to be, not to find the creature, but to find any individual, with the exception, according to Dr. Simon, of newly-born children, in whom these animalcules do not exist.



It is by no means necessary to commence our search by selecting an acne punctatum, or even a comedo; almost every collection of sebaceous substance which can be squeezed forth from the numberless cutaneous apertures upon the nose, the forehead, the face, and probably from other parts of the body, will furnish subjects. Moreover, Dr. Simon has observed that the parasites are situated near the mouth of the follicle, consequently, that portion of sebaceous substance which is squeezed out with the least force is the part which is most likely to be inhabited by the acarus.

The acarus folliculorum would seem to give rise to no uncomfortable effects by its presence, unless, perchance, it should multiply to such an extent as to become a source of irritation to the follicle—a supposition which Dr. Simon admits, for it is found in persons whose skin is perfectly healthy and clear, and in whom no signs of cutaneous irritation are present. These animalcules undoubtedly feed on the sebaceous substance in which they lie embedded, and which is the cause of their existence. I have commonly found two in the small mass of this substance expressed by the fingers, often four and five, and, in one instance, eight closely connected together. Hitherto, I have confined my examinations to living persons, having levied for contributions among my more intimate friends, and have not as yet had recourse to a skin studded with acne.

In the course of my investigations, I have examined several hundreds of these animalcules, and have seen all the forms described by Dr. Simon: I have also had the good fortune to discover the embryo and the ovum. I cannot, however, agree with Dr. Simon with regard to the phases of development, which he imagines to indicate perfection of growth; on the contrary, I am inclined to believe the most common to be the most mature form, and the third, or most perfect of Dr. Simon, an embryonic form. The following are the extremes of measurement of the perfect animal in fractions of an English inch, according to my examinations:—

<i>Entire length.</i>	<i>Length of abdomen.</i>	<i>Breadth of thorax.</i>
$\frac{1}{135}$	$\frac{1}{227}$	$\frac{1}{555}$
$\frac{1}{64}$	$\frac{1}{88}$	$\frac{1}{555}$

The animal is divisible into a head, a thorax, and abdomen, the whole of these parts being well and distinctly marked.

The *head* represents in form a truncated cone, flattened from above downwards, and directed obliquely downwards from the anterior part of the trunk. It is composed of two large lateral organs, termed by Simon maxillary palpi, and of an intermediate triangular organ. The *maxillary palpi* constitute the most considerable proportion of the head. Each is composed of three segments, and is furnished with a prehensile extremity, consisting of three curved finger-like organs, or claws. The first segment of the maxillary palpus is large and long, the two succeeding segments are smaller, and in every respect resemble the segments of which the legs are composed. Indeed, these maxillary palpi perform the office of arms, the first segment being fixed, and the next two bending downwards under the first, or being stretched directly forwards. It is this flexion and extension of a jointed organ that Dr. Simon mistook for extension and retraction. Upon the under part of the first segment of the

maxillary palpi I have observed a circle, which appears to me to bear some resemblance to an eye; upon this point, however, I am not quite satisfied.

The *triangular organ*, which includes the mouth of the creature, is composed of three elementary parts—namely: 1. Of a triangular process, a prolongation of the membranous case of the animal, from the neck along the middle line of the upper surface of the head, to the extremity of the latter, where it curves downwards, and in the latter situation consists of two parallel pieces placed side by side. 2. Of a funnel-shaped and tubular organ, or sucker, occupying a central position with regard to all the other cephalic organs. 3. Of another triangular narrow process, situated upon the under part of the head, and composed of two lateral pieces.

The head is connected to the anterior segment of the thorax by a loose membrane, marked on its surface by transverse lines, which indicate its susceptibility of being thrown into folds. This membrane is intended to admit of the retraction and extension of the head, and by its means the entire head may be drawn in and buried deeply beneath the level of the membranous fold here described, so that the head is entirely lost to view, and the animal looks decapitated, the fold of the cervical membrane forming a perfectly straight border in front. This is a peculiarity in the structure of the animal that has been passed over by Dr. Simon; he makes no allusion to any such power, and he undoubtedly would have done so had he observed it, for the effect of the retraction is too remarkable not to be instantly recognised. In fact, when an animalcule is alternately retracting and extending its head, the impression on the eye of the observer is that of a creature one while furnished with a well-defined head, and the next instant decapitated back almost to the level of the anterior segment of the thorax. The appearance presented by the animal during the retraction of its head is represented in the engraving.

The movements of the maxillary palpi are flexion of the last two segments, the first segment appearing to be firmly connected with its fellow of the opposite side, and being very limited in its movement of flexion. The extension of these segments upon the first has led Dr. Simon to infer that the palpus might be pushed out, and the sudden disappearance of these two segments, by flexion underneath the first, has induced him farther to believe that they might also be retracted. It might be imagined that when the creature is seen from its under surface, this error would become immediately apparent; but that is not the case, for the fore-shortening exhibited in the latter view only tends to increase the deception. The three finger-like claws at the extremity of the palpi are also capable of motion, and grasp upon any object within their reach. The triangular pieces, both of the upper and lower part of the head, move upwards and downwards on each other, and at the same time separate to a slight extent.

The *thorax*, which is the broadest and thickest part of the animal, and is somewhat tun-shaped, is flattened on its under surface. It is composed of four broad segments, which are free, and joined by a connecting membrane on the dorsum and sides of the creature, but are continuous inferiorly with the broad and strong plastrum which covers the whole inferior surface of the thorax. The segments are somewhat convex in their antero-posterior diameter, particularly at the upper part, so that the outline of the chest in this situation has the appearance of being slightly

fluted. The ankylosis of the four segments composing the plastrum is marked by four transverse markings, consisting each of two ridges, which correspond peripherally with the inter-spaces between the legs and centrally bifurcate, one passing forwards to unite with the line in front, the other passing back, to become continuous with that behind. The same arrangement takes place on the opposite side, and a sternal line, consisting of a double crest, is consequently formed. The markings of the plastrum here described being thicker than the rest of the covering of the animal, are strongly and characteristically marked.

The segmented structure of the thorax permits of a certain degree of movement in this part of the creature.

The *legs*, which are eight in number, are connected with the sides of the plastrum, each segment of the thorax sustaining one pair of these organs. They are conical in figure, the base of the cone being broad, and its apex obtusely truncated, and furnished with three finger-like claws. Each leg is composed of three segments, of a proximal segment, which is large, and almost triangular in form, the base of the triangle (scalene) being directed forwards, and two smaller, cylindrical segments, the distal segment supporting the three finger-like organs above noted. The legs are all of the same size.

The movements of the legs are a forward and a backward movement, the two small segments forming an acute angle in their bend forwards upon the proximal piece, and being extended directly backwards when the extension is completed; so that, when the creature advances its leg, and places it on a flat surface, the two small segments are directed forwards, and, by their underside, rest upon the ground, together with the foot, like the long hind-foot of the rabbit; then, clutching upon some object within reach, the segments are carried backwards, until they form a straight line with the axis of the proximal piece. By this movement, an enormous power of propulsion is gained by the creature, and it moves forward with considerable force. Dr. Simon remarks, that the animal performs a swimming movement with its legs, but without making any advance. That observation may, I think, be explained, by its compression, however slight, between two plates of glass; by the injury the animal has received by pressure from the hair-follicle along with the sebaceous substance; and by the fact of the glass upon which it attempts to walk affording no rough points to which it can attach itself. The legs are very irregular in their movements.

The *abdomen* is somewhat variable in point of length, but generally more than two or three times longer than the thorax. It is flattened on its under surface, and convex above, and tapers gradually from its base to its extremity, where it terminates in a rounded point. It is composed of a series of extremely narrow annular segments, which overlap each other from before backwards. When examined on either surface, the margins of these segments present the appearance of a regular succession of transverse lines, and when seen along the outline, they give to it the character of a serrated edge. The extremity of the abdomen is sometimes lengthened out into a small pointed process. The aperture of the anus is seen upon the under surface of the abdomen, near to its extremity.

The annulated structure of the abdomen which is here described, permits it to move with considerable freedom, and curve in any direction.

Of the *internal structure*, Dr. Simon says nothing more than that the

abdomen is filled with granular contents, and exhibits several large and irregular vesicles, which he compares to oil-globules. The granular matter of Simon is cellular tissue in its most simple form; with a good object-glass, the cells are quite distinct, and appear to be filled with adipose fluid. These cells are variable in point of size, some being exceedingly minute, and others of moderate bulk; they are assembled in such considerable number in the abdomen, as to give it a dark appearance, and by forming a thin stratum upon the inner surface of the integument, they obscure the alimentary canal. Sometimes the cells are confined to the abdomen, but more frequently they extend into the thorax, forming a narrow line, that may be traced almost as far as the head. By careful examination, I have succeeded in distinguishing the muscular fasciculi, which move the legs, and a broad œsophagus. In the abdomen, I have traced also the outline of an alimentary canal, and have seen it terminate by an infundibuliform extremity at the anus. The transparent cell-like organs seen in the abdomen of the perfect animal I regard as dilatations or convolutions of the alimentary canal; and a dark brownish mass in the commencement of the abdomen I consider to be the liver. I have been unable to discover any sexual differences in the numerous examples which I have examined.

I have before remarked, that I entertain a somewhat different opinion to that of Dr. Simon, in relation to the forms assumed by the animal during its progressive stages of development. But this is a question which I must reserve for the present, as I am now engaged in researches which may possibly throw additional light on the structure and habits of the animalcule.

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## ON THE PREPARATION AND THERAPEUTIC VIRTUES OF ANTHRAKOKALI.

656. ANTHRAKOKALI was introduced by Dr. Polya, of Pesth, about two years back, as a specific in certain diseases of the skin, and was made the subject of a short treatise by Dr. Jacobovics. It was administered by Dr. Polya as an internal medicine, and was especially employed against tettery affections, which this gentleman conceived to originate in a peculiar constitutional disorder. Anthrakokali, in the hands of Dr. Polya, produced the same specific effects, in relation to the tettery principle, that mercury effects in the case of syphilis, sulphur in the instance of scabies, and iodine in that of scrofula.

According to Dr. Polya, anthrakokali acts upon the entire system, producing a temporary increase of the local affection. It gives rise also to violent perspirations, and produces a general state of feverishness, under which the disease is cured. Thus it would appear, that by ex-

citing a disease greater than that which it is employed to cure, it works its beneficial effects.

On the reputation which this substance obtained in the hands of Dr. Polya, Gibert made trial of it in Saint Louis. Administered internally, he obtained none of the marked results described by its proposer; and after a fruitless experiment of several months' duration, gave it up as useless. Gibert next used anthrakokali as a local application, in the form of ointment: he found it less stimulant than the ordinary alkaline ointment, but yet sufficiently resolute. As a general principle, he remarks, "the anthrakokali is a stimulant well suited to those cases in which we commonly employ sulphur and alkalis. It can only be used in the second stage of tettery affections—namely, in that in which the acute period has yielded to the chronic state, the latter being, nevertheless, subject every now and then to re-excitement." For this reason, we find him lauding the effects of the anthrakokali, in a case of psoriasis inveterata, which had assumed an inflammatory activity under the use of an ointment of ioduret of ammonia. Thus, it would appear, that the anthrakokali deserves a place only among our more common stimulating applications, and is to be resorted to in cases where moderate stimulation is alone required, or where the morbid surface has become used to other forms of stimulant.

My own practice is a complete corroboration of the results obtained by Gibert. I have not ventured to use the remedy internally, after perusing the account given of its effects by Dr. Jacobovics, but I have found it an ordinary stimulant as a local application. An additional stimulant is, however, often of considerable value in our treatment, after we have employed without success the forms which we are most accustomed to prescribe. I have frequently observed a morbid surface, which has remained unchanged for weeks under the use of a given resolute, suddenly assume a favourable aspect when treated by another with which the tissues are less familiar.

657. The mode of preparation of Anthrakokali is as follows:—

℞	Carbonate of potass . . . . .	180 parts
	Boiling water . . . . .	2500 „

After the solution of the alkaline salt, add hydrate of lime, in sufficient proportion to leave the potass free. Filter the fluids, and evaporate in an iron vessel until the surface assumes the appearance of oil. Then add 150 parts of coal in fine powder, stirring it with the liquid until it be well mixed. The iron vessel is then to be removed from the fire, and the stirring is to be continued until the contents are converted into a black homogeneous powder. The anthrakokali should then be placed in well-stoppered bottles, in a dry place, in order to exclude moisture.

Dr. Polya also prepares a sulphuretted anthrakokali, by adding with the coal fifteen parts of sulphur also, in fine powder. This latter preparation is more active than the simple anthrakokali.

Anthrakokali is deliquescent, and very soluble in water. Its solution is of a deep brown colour, throwing down a black flaky precipitate with a mineral acid. The colour of the solution of the sulphuretted anthrakokali is blackish-green.

Dr. Polya asserts, that the anthrakokali is a chemical compound of potass

and coal, and that in the form of solution the latter is actually dissolved in the water. The test of this solution is the continuance of the fluid of its brown hue, without the occurrence of any precipitate. Gibert, however, denies this chemical combination, and regards it as a simple mechanical admixture. The coal, he says, separates from the fluid by precipitation, until the latter loses the whole of its colour, and none of the former remains behind.

Dr. Polya prescribes two grains of the powder, three or four times a-day in liquorice powder, or carbonate of magnesia. The ointment prepared by Gibert consists of

℞  
 Anthrakovkali, gr. xvj.  
 Axungiæ, ℥j.  
 M.

To be applied with or without friction, as the case may demand, twice in the day.

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#### ON THE PREPARATION AND THERAPEUTIC VIRTUES OF FULIGOKALI.

657. Soot has long enjoyed a reputation as a stimulant remedy in chronic diseases of the skin; it has for many years been used as a popular application in diseases of the scalp, and very recently has been recommended with much praise in the treatment of favus.

Fuligokali is a compound of soot and potass, in imitation of anthrakovkali. It was first prepared by M. Deschamps, a chemist of Avallon, and has been made the subject of experiments, attended with considerable success, by M. Gibert, in Saint Louis. M. Gibert has employed the Fuligokali both internally and externally, and finds it superior to anthrakovkali. As an external application, in the form of ointment, it is resolute, deterrent, and stimulant.

The mode of preparation of the compound is the following:—

℞  
 Caustic potass . . . . 20 parts  
 Soot . . . . . 100 „  
 Water . . . . . q. s.

Boil the mixture for an hour; cool, filter, evaporate, and dry. The fuligokali is obtained in the form of scales or powder, and must be kept in well-stoppered bottles in a dry place.

A sulphuretted fuligokali is obtained by the following process:—

℞	Soot . . . . .	60 parts
	Caustic potass . . . .	14 „
	Sulphur . . . . .	4 „

Heat the sulphur and potass with a little water, and after their solution, add the soot. Evaporate, dry, and close the resulting compound in well-stoppered bottles, and keep it in a dry place.

The ointment used by M. Gibert is composed of a scruple to half a drachm of the salt to an ounce of lard. In larger proportion it is highly irritating.

Soot is a substance which is variable in its composition, and must differ according to the circumstance of being procured from the combustion of wood or coal. Its principal constituents are:—

Acetate, sulphate, and carbonate of lime,  
 Hydrochlorate of ammonia,  
 Chloride of sodium,  
 A brown, bitter, extractive matter,  
 An empyreumatic tar,  
 A bitter, volatile oil, possessing a strong odour of soot,  
 A fatty matter, containing oleic and stearic acid,  
 Carbon.

The potass solution dissolves the volatile principle of the soot, together with its aqueous extract. It contains, consequently, its active principles.

It is probable that both the anthrakokali and the fuligokali owe much of their therapeutic value to the alkali which forms their basis. I have employed the fuligokali in several cases, and particularly in psoriasis palmaris, and with better success than I had obtained by the usual remedies.

## THREE CASES OF SUDATORIA,

OBSERVED IN THE HOTEL DIEU, DURING THE SUMMER, 1842,

BY M. MARROTTE.

658. AFTER the description of sudatoria contained in this volume had passed through the press, the following cases of a very rare affection were reported, by M. Marrotte, as having appeared in Paris, towards the close of the epidemic of typhus fever which had raged in that city. M. Honoré, in whose wards the patients lay, had never before seen cases of this disease; and M. Rayer, who is well acquainted with the disorder, had never seen it in Paris.

*Case 1.*—A young man, twenty-three years of age, was received into the hospital, July 29, complaining of pain in his head, lassitude, great prostration, thirst, and drowsiness. His skin was hot, pulse frequent, tongue and teeth foul; had had no action of bowels, which could only be brought to move by medicine; no rumbling in the iliac fossa. There were none of the lenticular spots which accompanied the prevailing epidemic. The skin, though very hot, was neither dry nor burning; on the contrary, it was moist. He complained, moreover, of an uneasy sensation and feeling of anxiety at the pit of the stomach, which led to the administration of an aperient emetic.

The present symptoms have lasted for three days. His first indications of disease were, general uneasiness and loss of appetite, which were not sufficiently pressing to induce him to relinquish his duties. Suddenly, in the middle of the day, he was seized with pain in the head, and great prostration, which forced him to take to his bed, but he had no rigours, no diarrhœa; his skin was at the same time covered with a moderate, though constant perspiration.

For two or three days after admission the patient continued in the state above described, without having been benefited by a bleeding from the arm, practised previously to his application at the hospital. After this period, the disease assumed all its severity, the prostration and drowsiness were more marked, the perspirations and oppression became more intense. The perspirations streamed forth continually from the skin, the heat of skin increased, the pulse became stronger and more frequent, the oppression was accompanied by cough and mucous expectoration, and auscultation discovered mucous râles throughout the whole extent of the bronchi.

This combination of symptoms persisted in all their force for ten or twelve days: at the expiration of this period, the patient felt improved. His



amendment seemed in some degree to have been effected by a change in the position of his bed to a better ventilated situation. Under the influence of this change of position, the perspirations diminished, the tongue became soft, moist, and simply furred, the teeth became clean, and the thirst was diminished.

On the 25th of August, the patient is progressing; the surface is still moist in situations where the skin is naturally perspirable. Vesicles are dispersed about the neck and trunk, some being filled with a milky serum and surrounded by a slight areola; others being transparent. The return of appetite is more tardy.

659. *Case 2.*—A man, upwards of six feet in height, thirty years of age, had felt, every evening, a sensation of feverishness, for about twelve days; his appetite failed; he suffered from thirst; his skin felt burning hot, and he experienced considerable drowsiness. Since his admission, the fever has become increased and continued; his skin is covered by a constant perspiration; he has headach, pain in the left side, anxiety, and oppression at the præcordia.

In the course of five or six days, the anxiety and oppression have assumed an excessive degree of intensity; he has cough and expectoration, and mucous râles are very obvious throughout the whole of his chest. The perspirations have increased, together with the heat of skin, and the hardness and frequency of the pulse. The abdomen is distended, the tongue thickly furred; there is great prostration, and perpetual drowsiness. An eruption of red pimples appeared upon the neck, and spread thence to the face and trunk; in two or three days these pimples were surmounted by vesicles, containing a lactescent fluid, and were followed by successive eruptions of sudamina, chiefly of the phlyctenoid kind, which occupied the vacant spaces between the papulæ.

As the eruption increased and advanced in development, the oppression diminished, the pulse became softer, and the abdomen diminished in bulk. In this patient, as in the former, the bowels were inactive, and required the aid of medicine. His intellectual powers were unaffected, and the appetite returned gradually to its normal standard during recovery. On the 25th of August he was convalescent.

660. *Case 3.*—A young man, twenty-four years of age, for some time past suffering from uneasiness, loss of appetite, and lassitude, for which symptoms he was bled from the arm without benefit. He was next seized with headach, vomiting, diarrhœa, and perspirations, and was forced to take to his bed, where he remained for eight days, suffering with perspirations during the whole period.

On admission, August 16th, he was in a state of extreme prostration, heaviness was exhibited in his features, his tongue and teeth were covered with sordes, the perspirations were general and continual, his abdomen was distended, and he suffered from thirst. For several days he remained in this state, answering with difficulty the questions that were put to him. He had retention of urine, and upon the passage of a catheter, a full basin of clear urine was withdrawn. In seven or eight days from this time, his state was improved, the stupor has diminished, and the tongue is moist. The perspirations are mitigated, and this mitigation became strikingly apparent as soon as the patient was removed to a better ventilated situation.

They have not yet, however, wholly ceased; the hardness and frequency of the pulse have yielded.

From this period, amelioration was as speedy as in the former cases, but the return of appetite was not so marked as is customary after typhus fever; he was not so much emaciated as are patients convalescent from the latter disease, but he appears more debilitated.

M. Marotte remarks, with regard to these cases, on the exacerbation which took place at the close of the fifth or sixth day; the continuous perspirations which existed at that period both day and night; the intensity of the prostration and drowsiness; the cutaneous eruption which at this period made its appearance, but without being critical; the oppression and anxiety at the præcordia appearing with the perspirations; the protraction of amendment to the term of two weeks from invasion; the continuance of perspirations to the close of the third week, and the marked benefit resulting from better air and ventilation; all of which symptoms he looks upon as pathognomic.

Contrasting the disease with typhus fever, he recalls the negative characters of sudatoria. There was no diarrhœa in the commencement; there were no headach, rigors, or vomitings; the prostration of the physical powers is rarely so great; it is rare that the tongue and teeth are so speedily covered with sordes, or that drowsiness is so strongly marked. The first week passed away without epistaxis, and without lenticular spots. The pulse of sudatoria, again, has never the smallness and frequency of the pulse of typhus.



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found in the luxurious habits of later times, which have carried to a dangerous excess the comforts of our dress and habitations. In nothing is there a greater contrast between us and our ancestors than in the luxurious closeness and warmth of our apartments; and it will scarcely be denied that the result of such a mode of living has been to render us more easily affected by the rigour and changeableness of the climate out of doors, which, unhappily, appears rather to have retrograded than improved, while the endless invention of new modes of defence in our domestic arrangements, has made the contrast still greater. No author has dwelt so much on the consequences of these luxurious habits in predisposing to asthma, as Withers, whose observations are most pertinent, and well merit the attention of the reader. (See his *Treatise on Asthma*.) It is frequently by inducing this sensibility to the impression of cold, and by thus predisposing to catarrh, that dyspepsia lays the foundation of asthma. Many other of the remote causes of asthma operate in the same manner, and among these, certain mental states, particularly the depressing passions. Sedentariness and seclusion, the natural consequences of grief and melancholy, give rise to dyspepsia, and dyspepsia induces the languid circulation in the skin, extremities, and mucous membranes, which seems to be the immediate cause of the increased sensibility to cold.

**II. Exciting causes.**—Under this head must be comprehended all such circumstances as have been known immediately to induce a paroxysm, whether in the predisposed or not. These are extremely numerous and various. Joseph Frank alone enumerates upwards of forty, and it is but justice to this learned and indefatigable writer to state that he gives his authority in every case. (*Prax. Med. Univ. Pars ii. vol. vii. p. 386.*) Our countryman Willis, in general and more pithy terms, conveys nearly the same information when he informs us that “asthmatics can bear nothing violent or unusual. From excess of heat or cold, from any great bodily exertion or mental emotion, from change of season or of weather, from errors, even of a slight kind, in the non-naturals, and from a thousand things besides, they fall into fits of dyspnœa.”\* By far the most common and most important of these cases, we consider to be the application of cold, or, at least, one or more of those circumstances, whatever they may be, which, in ordinary cases, produce catarrh. Although it will appear from what is gone before that we do not deny the existence of cases of asthma of a purely nervous kind, and altogether independent of any permanent local affection of the bronchial membrane, we are decidedly of opinion that they constitute an extremely small proportion of the cases met with in practice. And we are further of opinion that out of the immense majority of cases of asthma from other causes, nine-tenths are complicated with some form of catarrh, or, at least, with a morbid susceptibility

\* Asthmatici nihil violentum aut inassuetum ferre possunt: à frigoris vel caloris excessu, a vehementi quovis corporis aut animi motu, ab aeris aut anni mutationibus quibusque magnis, ab erratis vel levioribus circa res non naturales, imo propter mille alias occasiones in dyspnœæ paroxysmos incidunt. — *De Medicam. Oper. p. 209.*

of the bronchial membrane to be affected by cold. In this very numerous class of cases, then, all those circumstances which induce catarrh, and which may generally be considered as some form or modification of cold, applied to the whole body or to a part of it, must be understood to be the usual exciting causes of the asthmatic paroxysm.

[Yet in regard to the exciting causes, there are some which induce asthma, and can scarcely be considered amongst the causes of catarrh. In general, a cold and dry air suits the asthmatic, but there are singular differences in this respect. Closing a door has been known to bring on a paroxysm; and, with some, darkness increases the violence of the attacks. One cannot bear smoke; another exists better in a smoky apartment. (*Dunghison's Practice of Medicine*, 2d edit. i. 327: Philad. 1844.)]

All practical writers on asthma lay great stress on this exciting cause; but none with such precision and effect as Withers, Ryan, and Watt. The latter author in particular, in a short but most valuable essay published in his *Treatise on Diabetes*, has very strikingly and beautifully illustrated the subject. In several cases there recorded, he has pointed out, with the greatest minuteness and perspicuity, the gradual influence of the cause, from the first impression of the cold up to the invasion of the paroxysm: (*Cases of Diabetes, &c. p. 254. Glasgow, 1808.*) Ryan had previously made the same observation, and applied it to practical purposes of the greatest importance. (*Observations on Asthma*, p. 40: London, 1793.) In these opinions our own experience leads us fully to concur; almost every case of asthma which we have met with being traceable to the usual causes of catarrh, and most of them being advantageously treated only on the principles which regulate the practice in that disease.

**Treatment of Asthma.**—In this, as in other diseases, the attainment of a just pathology would wonderfully abbreviate the labour of therapeutical prescription. In the writings of the older authors, who were, in general, guided either by empirical views or by fanciful theories of disease, we find no end to the array of medical formulæ, until every thing that had been put on record by their predecessors, or had been imagined by themselves or their contemporaries, as useful or likely to be useful in the individual disease under consideration, has been displayed at full length. In our own days, and in the diseases of the nature of which we have acquired some accurate views, a few general precepts will convey to those acquainted with the general principles of therapeutics all that we have to deliver respecting the treatment of a disease. We have not yet attained, in the case of asthma, to a pathology perfect in all its parts; yet we trust that enough has been recorded in the preceding pages to permit us to be more brief in the delivery of our practical precepts than some of our predecessors.

In entering upon this part of our subject, it is desirable that the reader keep constantly in mind that almost every thing in the succeeding pages respecting the treatment of asthma applies exclusively to the chronic forms of that disease. It will be recollected that the disease termed acute asthma is either a variety of bronchitis, or a violent

effects of astringents by acting chemically on the contents of the stomach and intestines, very few remarks will suffice. Both lime and its carbonate, or chalk, operate in checking diarrhœa by neutralizing the ascendent matters which augment the irritability of the intestines, and keep up their morbidly increased peristaltic movement. Owing to the little solubility of pure lime, chalk, rubbed up with mucilage of gum so as to suspend it in any fluid, is preferred in cases of diarrhœa. It is incompatible with vegetable infusion containing much tannin, and with preparations of ipecacuanha. When it is necessary to continue the use of the chalk mixture for some time, the bowels should be cleared with a purgative, as accumulations in the form of hard balls are apt to take place in them, and, lodging in the folds of the intestines, to cause much inconvenience and, occasionally, hazard.

[The agents, considered thus far, may be regarded as direct astringents; but profuse evacuations may be connected with different states of the living system, so that agents, possessed of no astringent properties, may check them or produce an astringent operation indirectly. Hence, there may be *direct* and *indirect* astringents, as there are direct and indirect tonics. Opium, for example, by allaying the augmented peristole in diarrhœa, may exert an action of astringency, and diminish the number of discharges: accordingly, it is often had recourse to in such cases. Again, the increased discharges of dysentery are induced by an inflammatory condition of the mucous coat of the intestines: bleeding, therefore, by allaying this inflammation, and castor-oil,—given occasionally, so as to remove gently the morbid secretions,—by taking away the cause, may check the effects. A predominance of acidity in early infancy lays the foundation for many of the bowel complaints, which are so common at that age, and keeps them up when once established. A proper antacid, as before observed, by neutralizing the acid, takes away the cause, and thus becomes an indirect astringent. (The writer's *General Therapeutics and Mat. Med.* ii. 96, Philad. 1843.)]

In a therapeutical and practical point of view, astringents, when administered on proper principles, are a valuable class of remedies. In intermittent fevers, the vegetable astringents have been successfully employed in the same manner as simple tonics. We can form no other idea of the manner in which they prove beneficial than by supposing, that they obviate the relaxation which favours the influence of the exciting causes of agues. On this account it has been asserted that tonics and astringents operate in every respect in a similar manner; but many tonics, such, for instance, as sulphate of quinia, possess no astringency, and nevertheless are useful in intermittents; and it must be admitted that, as pure astringents are seldom or never given alone in intermittents, it is difficult to ascertain how much of the benefit is due to their influence. They are employed in continued fevers only to moderate incidental diarrhœa and internal hemorrhages.

In the phlegmasiæ, astringents are contra-indicated as general remedies; but in that state of inflammatory action which assumes a chronic character, and is kept up by debility and increased

nervous excitability, such as occurs in the eye and in the tonsils, they are local remedies of considerable value. Solutions of the metallic salts, and infusions of astringent vegetables, with the addition of diluted sulphuric acid, are well adapted for these cases. Indeed, after inflammatory action has been subdued by the use of the lancet and other antiphlogistic measures, the application of cold and astringent solutions tends greatly to restore the healthy action of the part.

[In diphtheritic affections of the throat, a solution of nitrate of silver has been found of great benefit; and in cases of diphtheritic laryngitis, the inhalation of finely powdered alum has been markedly advantageous. Not only—according to Laënnec—has it afforded great and speedy relief in tracheitis, but in laryngitis isthmitis, and pharyngitis.]

No remedies are so important in the hemorrhagiæ as astringents; but they are not to be indiscriminately prescribed, or at all times employed: it is, therefore, necessary, to inquire what are the circumstances indicating their use in these cases? Hemorrhages are properly divided into active and passive. In the first or active kind, the flow of blood generally arises from a plethoric condition of the vascular system; and it may, in some respects, be regarded as an effort of nature to relieve the morbid fulness of the vessels. In this form of hemorrhage, tonic astringents are improper; and even those exerting a sedative influence should not be resorted to until the vessels be either emptied spontaneously or by the use of the lancet. In passive hemorrhages the animal fibre is relaxed, the red particles of the blood are diminished, and diffused in a superabundance of serum, so that the blood assumes a pale watery aspect; while the system suffers from general debility. In this state, astringents are decidedly indicated, and may be liberally employed. Although these opposite states appear very obvious in description, yet much judgment and attentive observation are requisite to distinguish them on many occasions. If we take, for example, epistaxis, let us enquire, what are the peculiar symptoms which clearly indicate the employment of astringents? When bleeding takes place from the nostrils of young persons of a plethoric habit, it may be critical, or connected with congestions, or a determination of blood to the head. In this state the hemorrhage should not be checked by astringents, unless it is so profuse and long continued as greatly to lower the pulse, to produce pallor of the countenance, and exhaust the general strength. On the contrary, when epistaxis happens in weak boys or youths, or in old persons; or when it is symptomatic of diseased liver, or some other internal organ; then astringents may be at once administered to check the direct loss of blood, whilst other means are resorted to for removing the exciting causes of the hemorrhage. The best astringents in these cases are solutions of metallic salts and of alum: they may be either injected into the nostrils, or drossils of lint soaked in an astringent solution may be inserted; while at the same time cold water is applied to the face and nape of the neck.

In hæmoptysis, if the excitement be considerable, the lancet must be employed, after which the application of cool air, cold water, or ice to the

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